PARSUN OUTBOARD ENGINE
SERVICE MANUAL

F2.6BM

SUZHOU PARSUN POWER MACHINE CO., LTD.

NOTICE

This manual includes service instructions for F2.6 and has been prepared by Parsun Power primarily for use by the dealers when performing maintenance and repair to Parsun outboard engines. Before performing maintenance, please read the manual carefully. When performing maintenance and repair to Parsun outboard engines, please use the service procedure and tools recommended by the manual. If you use other service procedure and tools, please follow guidance from experienced maintenance people, to avoid damage to people and outboard engines.

The manual is based on the sample machines that are produced at the time of printing, so the model being actual purchased may differ a little from the descriptions and illustrations given in this manual. If necessary, our company will distribute the manual revision to dealers.

In this Service Manual, particularly important information is distinguished in the following ways, please ready the manual carefully, and perform the instructions correctly and carefully.

⚠ **WARNING:**
Failure to follow WARNING instructions could result in severe injury or death to the machine operator and bystander.
CAUTION:
A CAUTION indicates special precautions that must be taken to avoid damage to the outboard motor.
NOTE:
A NOTE provides key information to make procedures easier or clearer.

The common troubles and solutions are given in the end of the manual, please ready carefully. When performing maintenance and repair to Parsun outboard engines, they will help you judge the outboard engine's status quickly and improve the work efficiency.

Suzhou Parsun Power Machine Co., Ltd.

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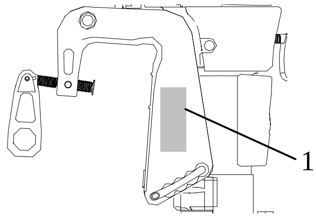
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GENERAL INFORMATION

IDENTIFECATION

The outboard motor serial number is marked on the label. The label can be found on the bracket left assembly or on the upper part of the bracket swivel. Record your outboard motor serial number in the spaces provided to assist you in ordering spare parts from your Parsun dealer. To prevent from theft, the serial number label will be destroyed if removed from the outboard motor.





1. Outboard motor serial number location

Serial number as follows:

SN □ □□ □□□□□□

MOTOR BATCH SEQUENCE NUMBER

PRODUCTION CODE

PROPELLER SELECTION

The performance of your outboard motor will be critically affected by your choice of propeller, as an incorrect choice could adversely affect performance.

For a greater boat load and a low engine speed, a smaller-pitch propeller is more suitable. Conversely, a large-pitch propeller is more suitable for a smaller operating load as it enables the correct engine speed to be maintained.

When the engine is running at full throttle position, the suitable propeller should be used according to the engine's RPM and the fuel capability, so that the outboard engine can supply the best performance.

Propeller sizes	Material
7 1/4 × 6	Aluminum alloy
7 1/4 × 5 1/2	
7 1/4 × 7 1/4	
7 1/4 × 8 1/4	
7 1/2 × 5 1/2	

EMERGENCY START

If the starting device is not working, the engine can be started by emergency start cable.

⚠ **WARNING：**

- **The start program can only be used in emergency and to return to harbor for repairing.**
- **When you start the engine by emergency start cable, please ensure the shift rod is in NEUTRAL position.**
- **Please ensure nobody standing behind you in case the cable is pulled out to hurt people.**
- **After the engine starts up, don't fit the start device or top cowling. Put clothing or other**

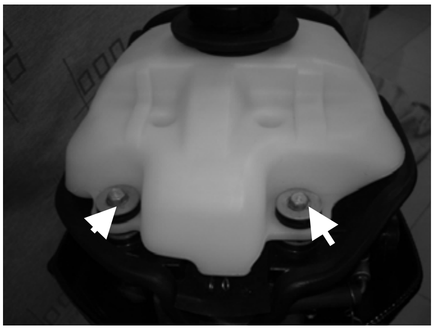
items far away. Don't touch flywheel or other moving parts.

- **When starting and operating, don't touch ignition coil, spark plug cap or other electric parts.**

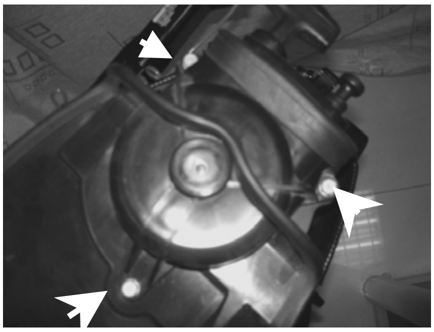
The procedure is as follows:

1. Remove the top cowling.

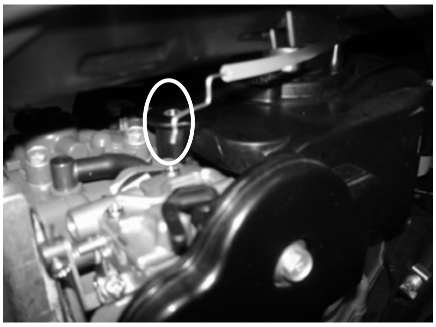
2. Remove the bolts fixing the fuel tank.



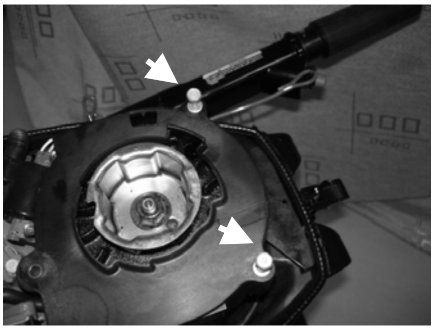
3. Lift the fuel tank and remove three bolts.



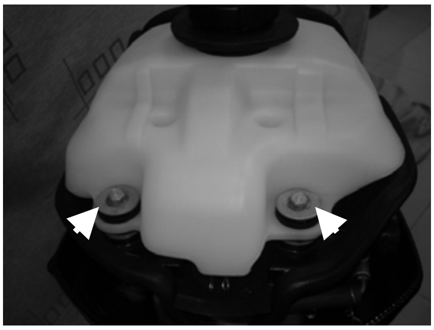
4. Lift the starter and remove choke cable from carburetor



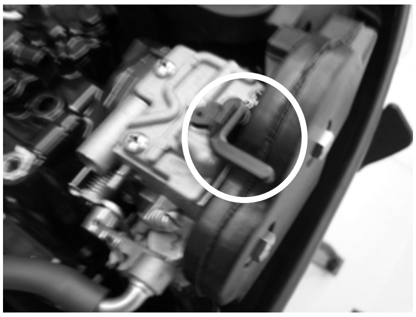
5. Remove the starter.
6. Install the bolts to fix the flywheel cover



7. Install the bolts to fix the fuel tank.



8. When the engine is cold , circumvolve the lever of carburetor in order to operate choke system. Return lever to home position after engine starts.



9. Insert the knot of the cable in the notch of flywheel rotor, and wind the cable around flywheel several rounds in clockwise direction.
10. Pull the manual starter handle slowly until you feel resistance.
11. Give a strong pull to start the engine. Repeat if necessary.

SAFETY WHILE WORKING

To prevent the danger or accidents when performing maintenance and repair, and improve the work efficiency, please obey the following safety procedures.

1. **FIRE PREVENTION**
   Gasoline (petrol), lubricant and grease are highly flammable. While working, keep away from heat, sparks and open flames.

2. **VENTILATION**
   Petroleum vapor and engine exhaust gases are violent in toxicity. They are harmful to breathe and deadly if inhaled in large quantities. When test-running an engine indoors, maintain good ventilation.

3. **SELF-PROTECTION**
   Protect your eyes with suitable safety glasses or safety goggles, when drilling, grinding or operating air compressor. Protect hands and feet by wearing protective work clothes, safety gloves and shoes if necessary.

4. **LUBRICANTS AND SEALING FLUIDS**
   When performing maintenance procedures and repair to Parsun outboards, use only products provided or recommended by our Company.

Under normal conditions of use, there should be no hazards from the use of the lubricants mentioned in this manual, but safety is all-important, and by adopting good safety practices, any risk is minimized.

A summary of the most important precautions is as follows:

① To protect the skin, the application of a suitable barrier cream to the hands before working is recommended.

② Clothing which has become contaminated with lubricants should be changed as soon as practicable, and washed before further use.

③ Avoid skin contact with lubricants.

④ Hands and any other part of the body which have been in contact with lubricants or lubricant-contaminated clothing, should be thoroughly washed with hot water and soap as soon as practicable.

⑤ A supply of clean lint-free cloths should be available for wiping run-off lubricants or grease.

5. GOOD WORKING PRACTICES

① Follow the tightening torque instruction. When tightening bolts, nuts and screws, tighten the large sizes first, and tighten inner-positioned fixings before outer-positioned ones.

② Use the recommended special tools to protect parts from damage. Use the right tool in the right manner.

DISASSEMBLY AND ASSEMBLY

When disassembly and assembly, please follow the following principles:

1. Use special tools when disassembling and assembling.
2. Clean dirt before disassembling the parts.
3. Oil the contact surfaces of moving parts before assembly.
4. Install bearing with the manufacturer’s markings on the side exposed to view and liberally oil the bearing.
5. When installing oil seals, apply a light coating of water-resistant grease to the ledge and outside diameter.
6. After assembly, check if the moving parts operate normally.

ONE-TIME USE PARTS

One-time use parts are gasket, oil seal, O-ring, cotter pin and spring, ring, and etc.. When re-assembling outboard engine, you must change the one-time use parts.

PRE-DELIVERY CHECK

To ensure the using, please inspect the following before delivery.

1. CHECKING FUEL SYSTEM

Check if the fuel pipe is connected firmly, and if the fuel tank is filled with fuel.

CAUTION:

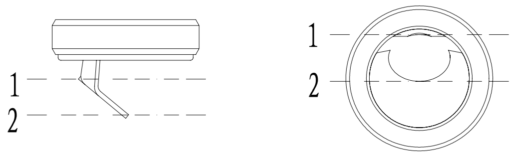
Do not use pre-mixed fuel for this 4-stoke outboard engine.

2. CHECKING OIL LEVEL

① Check the engine oil level

Check engine oil level from oil level checking hole.



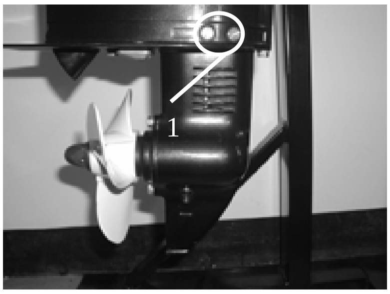


1. High position mark 2. Low position mark

Ensure the oil level between the marks of upper and lower. If above upper level, drain engine oil; if below lower mark, add engine oil up to upper level.

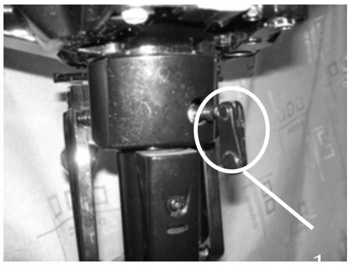
② Check the gear oil level

Remove the oil level plug. Check if the gear oil overflows at the oil level checking hole. If so, install the oil level plug and tighten it according to specified torque.
Otherwise please add gear oil.



1. Oil level plug

3. CHECK STEERING SYSTEM
   Check if steering is stable.
   Check if steering friction is adjusted correctly.
   Turn clamp handle screw clockwise to increase resistance.
   Turn clamp handle screw counter clockwise to lower resistance.



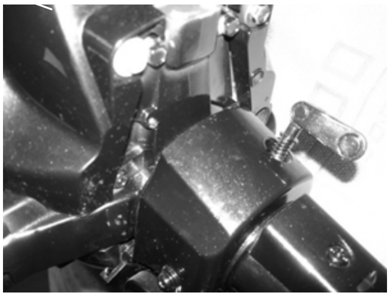
1. Clamp handle screw

4. CHECK SHIFT LEVER AND THROTTLE
   Check if the shift lever is operated smoothly.
   Check if the throttle grip is turned smoothly from full closed position to full open position.

5. CHECK ENGINE STOP SWITCH ASSY
   Check if the engine stops when pushing the engine stop switch assembly or pulling out the stopper hang rope.

6. CHECK COOLING WATER CHECKING HOLE
   When the engine is running, check if

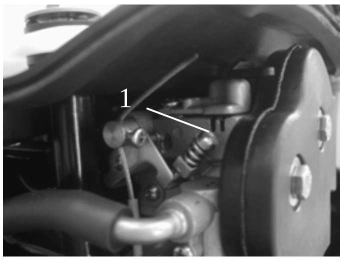
cooling water overflows at the cooling water checking hole.



1. Cooling water checking hole

7. BREAKING-IN RUNNING
   ① Initial 1 hour: operate the engine at 2000 r/min or about a half throttle.
   ② The second hour: operate the engine at 3000 r/min or about 3/4 throttle.
   ③ The following 8 hours: operate the engine at full throttle continuously. Each operation time doesn't exceed 5 minutes.

8. INSPECTION AFTER BREAKING-IN RUNNING
   ① Check if gear oil contains water.
   ② Check if the fuel line leaks.
   ③ After breaking-in running, operate the engine at idling speed. Use cleaning tool to wash over the cooling water passage by fresh water.



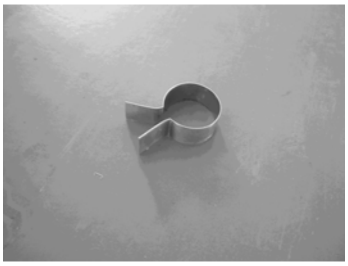
1. throttle stop screw

9. After breaking-in running, inspect idling speed.
   ① Preheating engine for 5 minutes.
   ② Using the tachometer to measure idling speed RPM.
      If out of specification, adjust it.
      Idling speed: 1800~2000 r/min
   ③ Turn the throttle stop screw clockwise or counter clockwise until the specified idling speed is attained.
   ④ After adjusting idling speed, picking up RPM several times to check the engine's stability.

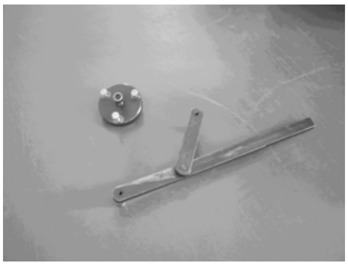
SPECIAL TOOLS AND DETECTION DEVICE

When performing maintenance and repair, you need to use all kinds of special tools and detection device. The use of correct tools will improve the work efficiency and avoid of the damage to the people and outboard engines.

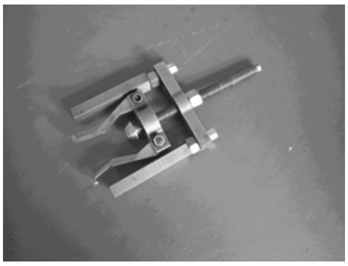
SPECIAL TOOLS:



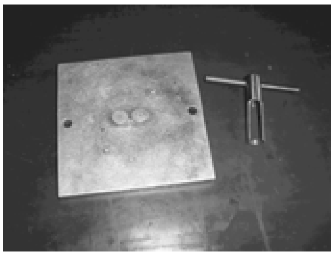
Piston slider

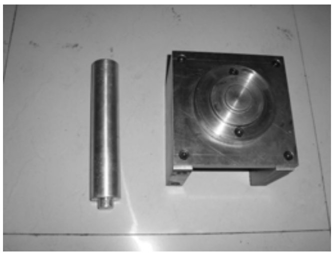


Flywheel holder and puller

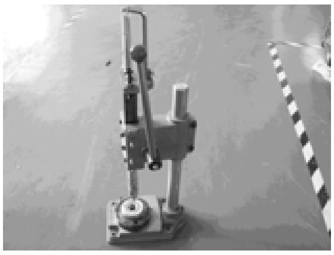


Bearing puller

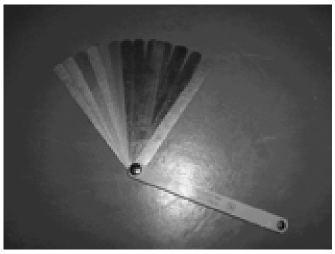

Valve spring compressor


Housing bearing installer


Lower casing cover bearing installer


Oil seal installer tool


Housing oil seal installer

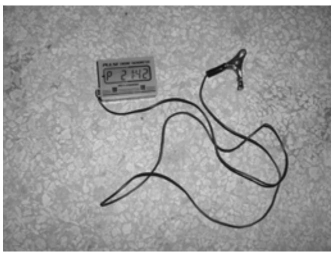

Space gage


Sleeve bearing with guard board installer tool

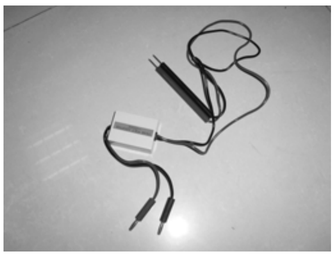

Lower casing bracket and
sleeve bearing without guard board installer tool


Lower casing bracket and drive shaft oil seal installer tool

DETECTION DEVICE:

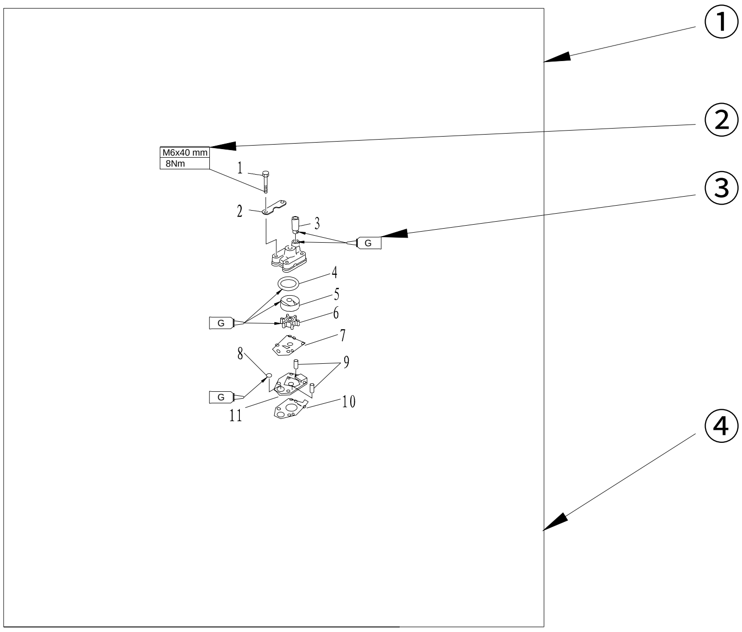

Digital tachometer


Digital universal meter


Peak voltage adaptor

EXPLOSIVE DRAWING AND SYMBOL

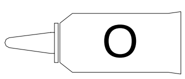
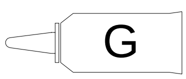
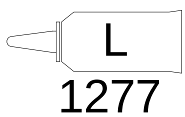
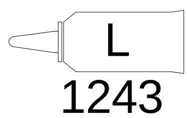
EXPLOSIVE DRAWING



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	GB/T5783-2000	六角螺栓M6x40	BOLT	4	
2	F2.6-03000016	泵壳固定板	PLATE, WATER PUMP FIXED	2	
3	F4-03000021	泵壳橡胶管	RUBBER TUBE, WATER PUMP	1	
4	JASO F404 19-033	水泵内壳O形圈	O-RING	1	
5	F2.6-03000015	水泵内壳	INNER HOUSING, WATER PUMP	1	
6	F2.6-03000100	叶轮组件	IMPELLER ASSY	1	
7	F2.6-03000010	外档板	OUT PLATE	1	
8	F2.6-03000009	O形密封圈	O-RING	1	
9	F4-03000013	定位销φ4x18	PIN	2	
10	F2.6-03000007	水泵座密封垫	GASKET, WATER PUMP	1	
10	F2.6-03000008	水泵座	HOUSING, WATER PUMP	1	

① Parts explosive drawing
② Screw specification and specified torque
③ Oil, fluid sealant or locking substance daubing point
④ Spare parts details

SYMBOL

			
Daub engine oil	Daub waterproof grease	Daub screw locking substance 1277	Daub screw locking substance 1243

SPECIFICATIONS

OUTBOARD ENGINE SPECIFICATIONS

<table>
<tr><th colspan="2">Item</th><th>Description</th><th colspan="2">Item</th><th>Description</th></tr>
<tr><td rowspan="3">Dimension</td><td>Overall length</td><td>645mm</td><td rowspan="3">Power Unit</td><td>Spark plug</td><td>BPR7HS</td></tr>
<tr><td>Overall width</td><td>343mm</td><td>Exhaust system</td><td>Under water</td></tr>
<tr><td>Overall height</td><td>1013mm</td><td>Lubrication system</td><td>Splash lubrication</td></tr>
<tr><td colspan="2">Weight</td><td>18.0kg</td><td rowspan="8">Fuel and Oil</td><td>Fuel type</td><td>Unleaded regular gasoline</td></tr>
<tr><td rowspan="4">Performance</td><td>Max output</td><td>1.9Kw(2.6hp)@5500r/min</td><td>Fuel standard</td><td>PON86、RON91</td></tr>
<tr><td>Full throttle operation</td><td>5250～5750r/min</td><td>Fuel tank capacity</td><td>1.2L</td></tr>
<tr><td>Max fuel consumption</td><td>1.1L/h@5500r/min</td><td>Recommended engine oil</td><td>API SE、SF、SE-SF、SG-CD SAE 10W30、10W40</td></tr>
<tr><td>Idle speed (Neutral)</td><td>1900±100 r/min</td><td>Engine oil quantity</td><td>0.35L</td></tr>
<tr><td rowspan="10">Power Unit</td><td>Type</td><td>4 stroke, OHV</td><td>Recommended gear oil</td><td>Hypoid gear oil SAE ＃90</td></tr>
<tr><td>Number of cylinders</td><td>1</td><td>Gear oil quantity</td><td>$75mm^3$</td></tr>
<tr><td>Displacement</td><td>$72cm^3$</td><td rowspan="4">Bracket</td><td>Tilt angle</td><td>0°, 4°, 8°, 12°</td></tr>
<tr><td>Bore×Stroke</td><td>54.0mm×31.5mm</td><td>Tilt-up angle</td><td>80°</td></tr>
<tr><td>Compression ratio</td><td>9.0</td><td>Steering angle</td><td>360°</td></tr>
<tr><td>Number of carburetors</td><td>1</td><td>Gear positions</td><td>F-N</td></tr>
<tr><td>Control system</td><td>Tiller control</td><td rowspan="4">Drive Unit</td><td>Gear ratio</td><td>2.08 (27/13)</td></tr>
<tr><td>Starting system</td><td>Recoil starter</td><td>Gear type</td><td>Bevel gear</td></tr>
<tr><td>Ignition control system</td><td>T.C.I</td><td>Propeller direction</td><td>Clockwise</td></tr>
<tr><td>Starting enrichment</td><td>Chock valve</td><td>Propeller drive system</td><td>Spline</td></tr>
</table>

MAINTENANCE INFORMATION

Power Unit

Item			Description
Cylinder Head		Warp limit	0.1mm
Cylinder		Bore	54.00~54.015mm
		Wear limit	54.1mm
		Taper limit	0.08mm
		Out of round limit	0.05mm
Piston		Piston diameter	58.950~58.965mm
		Measuring point height	0mm (from the Bottom of piston)
		Piston-to-cylinder clearance	0.035~0.065mm
		Pin boss inside diameter	12.009~12.017mm
Piston pin outside diameter			11.995~12.000mm
Piston ring	Top ring	Thickness	0.97~0.99mm
		Breadth	1.95~2.15mm
		End gap	0.15~0.30mm
		Wear limit	0.40mm
		Side clearance	0.04~0.08mm
	2nd ring	Thickness	1.17~1.19mm
		Breadth	2.30~2.50mm
		End gap	0.30~0.45mm
		Wear limit	0.60mm
		Side clearance	0.02~0.06mm
	Oil ring	Thickness	1.87~1.95mm
		Breadth	2.10~2.40mm
		End gap	0.20~0.70mm
		Wear limit	0.90mm
		Side clearance	0.06~0.16mm

Item			Description
Valve	Valve clearance (cold)	Intake	0.08~0.12mm
		Exhaust	0.08~0.12mm
	Face width	Intake	1.84~2.26mm
		Exhaust	1.84~2.26mm
	Seat width	Intake	0.6~0.8mm
		Exhaust	0.6~0.8mm
	Margin thickness	Intake	0.7mm
		Exhaust	1.0mm
	Head diameter	Intake	23.9~24.1mm
		Exhaust	21.9~22.1mm
	Stem outside diameter	Intake	5.475~5.490mm
		Exhaust	5.460~5.475mm
	Guide inside diameter	Intake	5.500~5.512mm
		Exhaust	
	Stem to guide clearance	Intake	0.010~0.037mm
		Exhaust	0.025~0.052mm
	Rod runout limit		0.03mm
Push rod runout limit			0.5mm
Valve spring	Free length		35.0mm
	Free length limit		34.0mm
	Tilt limit		1.2mm
Connecting rod	Small end inside diameter.		12.006~12.02mm
	Big end oil clearance		0.016~0.046mm
Crankshaft	Crankpin width		21.0~21.1mm
	Crankpin diameter		23.969~23.984mm
	Crankshaft journal diameter		21.980~21.993mm
	Round limit		0.01mm

Cont'd

Item		Description	Item		Description
Camshaft	Intake/Exhaust height	26.139~26.239mm	Thermostat	Valve opening temperature	58~62ºC
				Full-open temperature	70ºC
	Round diameter	21.950~22.050mm		Valve lift	3mm
	Journal diameter	14.966~14.984mm			
	Camshaft round limit	0.03mm			

Ignition system

Item	Description	Item		Description
Ignition timing	BTDC30º	Spark plug gap		0.6~0.7mm
T.C.I system output peak voltage	130V	Ignitor ass'y resistance	Primary coil	1.6~1.9Ω
T.C.I air gap	0.4~0.6mm		Secondary coil	5.8~7.0KΩ

TIGHTENING TORQUE

Specified torque

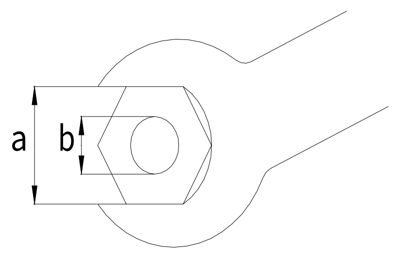
Part to be tightened			Part name	Thread size	Quantity	Torque
Power unit	Oil drain		Bolt	M8	1	18Nm
	Spark plug		—	M14	1	25 Nm
	Recoil starter		Bolt	M6	3	8 Nm
	Flywheel rotor ass'y		Nut	M10	1	44 Nm
	Carburetor		Bolt	M6	2	8 Nm
	Exhaust tester		Bolt	M8	1	20 Nm
	Cylinder head	1st tightening	Bolt	M8	4	14 Nm
		2nd tightening				30 Nm
	Cylinder head cover	1st tightening	Bolt	M6	6	5 Nm
		2nd tightening				12 Nm
	Rocker arm screw bolt		Bolt	M6	2	10 Nm
	Locknut (rocker arm)		Nut	M6x0.75	2	10 Nm
	Oil seal housing		Bolt	M8	1	18 Nm
	Power unit mounting		Bolt	M6	6	11Nm
	Thermostat cover		Bolt	M6	3	8 Nm
	Crankcase	1st tightening	Bolt	M6	8	5 Nm
		2nd tightening				11 Nm

Cont'd

Part to be tightened			Part name	Thread size	Quantity	Torque
Power unit	Connecting rod	1st tightening	Bolt	M7	2	5 Nm
		2nd tightening				9 Nm
	Oil splash gear unit		Bolt	M6	1	13 Nm
Lower unit	Lower unit mounting	1st tightening	Bolt	M6	3	3 Nm
		2nd tightening				8 Nm
	Lower unit housing cover	1st tightening	Bolt	M6	2	6Nm
		2nd tightening				11 Nm
	Anode	1st tightening	Bolt	M6	1	3 Nm
		2nd tightening				8 Nm
	Water pump housing	1st tightening	Bolt	M6	4	3 Nm
		2nd tightening				8 Nm
	Water pump base	1st tightening	Bolt	M6	1	3 Nm
		2nd tightening				8 Nm
Upper Unit	Steering handle mounting		Bolt	M8	1	26 Nm
	Shift lever bracket		Bolt	M6	1	5 Nm
	Swivel bracket		Nut	M6	4	12 Nm
	Clamp bracket		Nut	M8	1	16 Nm

General torque

Nut (a)	Bolt (b)	Torque
8mm	M5	5Nm
10mm	M6	8 Nm
12mm	M8	18 Nm
14mm	M10	36 Nm
17mm	M12	43 Nm



PERIODIC SERVICE

MAINTENANCE TIME TABLE

Items	Contents	Initial maintenace		General maintenance period	
		10 hours (1 month)	50 hours (3 months)	100 hours (6 months)	200 hours (1 year)
Anode	Inspection/replacement		○	○	
Spark plug	Cleaning/adjustment /replacement	○	○	○	
Grease points	Greasing		○		
Bolts and nuts	Inspection	○		○	
Fuel tank and fuel line	Inspection			○	
Fuel filter	Inspection/replacement	○	○	○	
Carburetor	Inspection/replacement	○		○	
Outboard outside	Inspection/replacement		○	○	
Idling speed	Inspection/ adjustment	○		○	
Engine oil	Replacement	○		○	
Valve cleanrance	Inspection/ adjustment	○		○	
Ignition timing	Inspection	○			○
T.C.I air gap	Inspection/ adjustment	○		○	
Thermostat	Inspection				○
Cooling water passage	Inspection/Cleaning		○	○	
Gear oil	Replacement	○		○	
Propeller	Inspection/replacement		○	○	

CAUTION:
After running the outboard engine in salt water, waste water or mud water, wash over the engine by fresh water immediately.
If using leaded gasoline frequently, check the valve and components each 100 hours.

FUEL SYSTEM

1. CHECK FUEL TANK, CARBURETOR, FUEL PUMP AND FUEL PIPE
   Check if fuel tank, carburetor, fuel pump and fuel pipe are damaged or leaked. Replace if necessary.
   Check if the fuel filter on the tank is dirty.
   Clean dirt or replace it if necessary.



2. CHECK FUEL COCK
   Check if fuel cock is cracked, damaged or leaking.
   Replace if necessary.

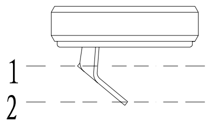


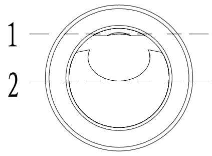
POWER UNIT

Engine oil level

1. From oil level checking hole, check if engine oil level is between the following marks of the upper and lower.







1. Oil level plug 2. Oil rule 3. High position mark 4. Low position mark

2. If above the upper mark, drain the engine oil; if below lower mark, add engine oil up to upper mark.

CAUTION:

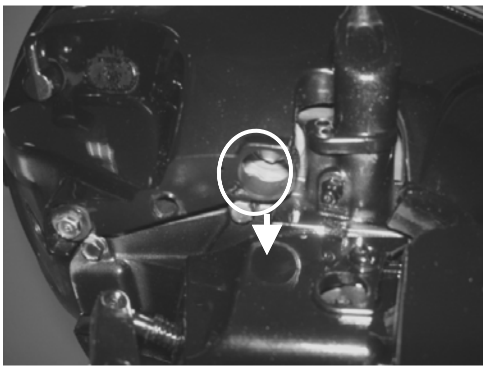
Run the engine for a few minutes and then turn it off, wait for several minutes, and check the engine oil level by the oil checking hole again.

If the engine oil still not within the proper level, add/drain as needed.

Changing engine oil

1. Remove oil level plug, drain plug with washer and gasket; drain off the engine oil.





2. Install new gasket and washer; install drain plug.

3. Fill engine oil into the crankcase through oil filler hole.
   Engine oil quantity: 0.35L
   Oil type: API SE, SF, SE-SF, SG-CD SAE 10W30, 10W40

4. Install oil level plug.

5. Check engine oil level.

Valve clearance

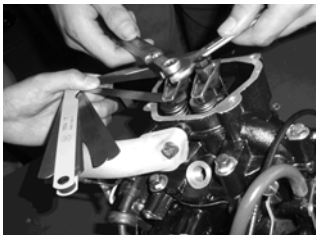
CAUTION:

Rotate the flywheel clockwise so that rocker arm is in free position, before adjusting valve clearance (Dead point position on compression stroke).

1. Remove stopper hang rope from engine stop switch assy.
   Remove spark plug cap from spark plug.

2. Remove cylinder head cover.

3. Use feeler gauge to measure the clearance between rocker arm and valve rod top: if out of specification, adjust.
   Valve clearance (cold position):0.08~0.12mm



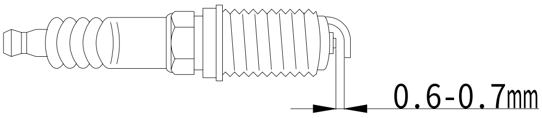
Spark plug

1. Remove spark plug cap and spark plug.

2. Clean off carbon build-up on the electrodes.

3. Check if the electrodes are corroded or have deposit, or if the washer is damaged.
   If necessary, change the spark plug.
   Spark plug type: BPR7HS

4. Inspect if the spark plug gap is within specification. If necessary, change the spark plug.



5. Install spark plug. Use spark plug spanner to tighten it according to specified torque.
   Specified torque: 25 Nm

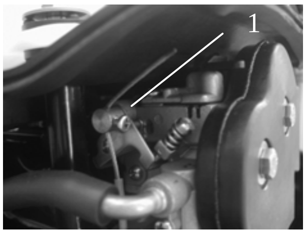
CONTROL SYSTEM

Throttle grip

1. Turn the throttle grip to fully closed position.

2. Check if the throttle cable is slack and if the throttle lever touches the throttle stop screw.

3. Loosen throttle cable stopper screw, adjust throttle cable position, and tighten throttle cable stop screw.



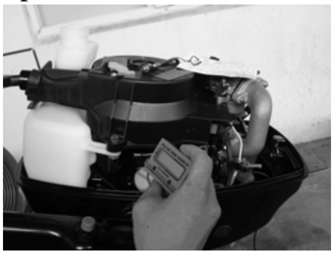
1.throttle cable stop screw

Idling speed

Check idling speed, and adjust it if necessary.

1. Preheat engine for 5 minutes.

2. Attach the tachometer to the spark plug wire to measure idling speed RPM. If out of specification, adjust it.
   Idling speed: 1800~2000 r/min



3. Turn the throttle stop screw clockwise or counter clockwise, until the specified idling speed is attained.

NOTE:
Turning clockwise to increase idling speed.
Turning counter clockwise to decrease idling speed.

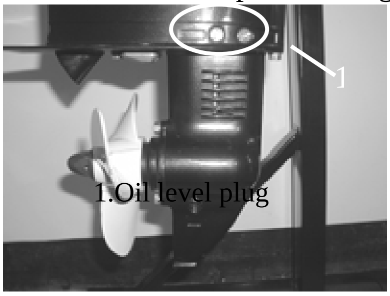
CAUTION:
Before adjusting the idling speed, the throttle cable slack should be properly adjusted. After adjusting the idling speed, if necessary you can adjust the throttle cable again.

LOWER UNIT

Gear oil

Check gear oil level:

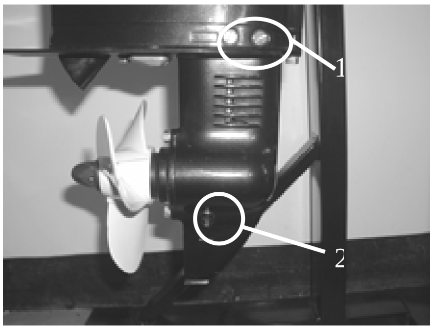
Remove the oil level plug. If the gear oil overflows at the oil level checking hole, the oil volume added is correct; otherwise please add gear oil.



1. Oil level plug

Changing gear oil

1. Hold the outboard engine in an upright position.
2. Place a container under the drain plug.
3. Remove the drain plug, the oil level plug, and then drain the gear oil.



1. Oil level plug 2. Drain plug

4. Add gear oil through the drain plug using pressure filling device.
5. When gear oil overflows at the oil level checking hole, install the oil level plug.
6. Install the drain plug, then clean overflowing gear oil.

NOTE:
Check the drained gear oil.
If the gear oil is milky, please check the oil seal. If necessary, replace the oil seal.
If the gear oil contains metal chippings, please check the gear and bearing.

CAUTION:
Must change drain plug washer each time.

Lower unit leakage check

Connecting the leakage tester to the oil level checking hole to check the lower unit leakage. If the pressure drops (pressure: 1kg/cm³), inspect the oil seal and components.

GENERAL INSPECTION

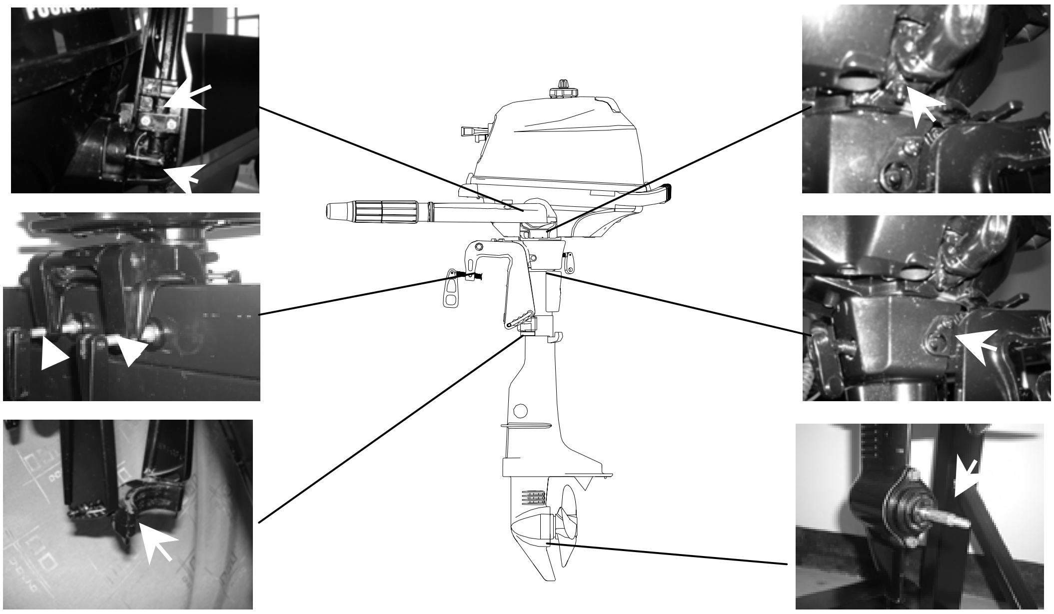
Anode

Inspect lower unit anode and engine anode (on the thermostat cover). Clean the greasy dirt and scales. If wear or damage is above 1/2, replace the anode.

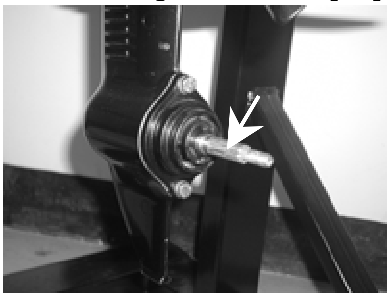
CAUTION:
Cannot grease or paint the anode, or it will not operate properly.

Grease points

1. Refer the illustration for greasing points, paint the water resistant grease.

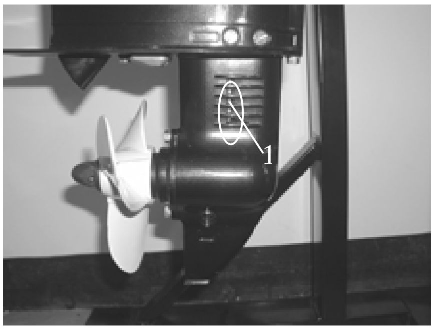


2. Paint anti-corrosion grease on the propeller shaft.



Cooling water passage

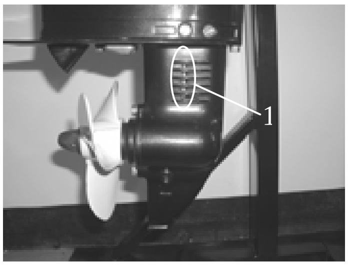
1. Inspect cooling water passage
   If blocked, clean it.



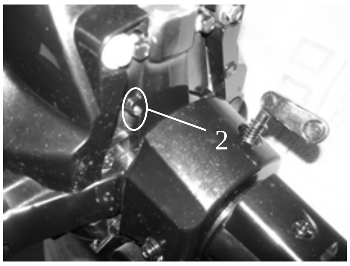
Cooling water passage inlet

2. Place the outboard engine in the water and ensure the water level is above the anti-vortex plate, then start the engine.

3. Check if water overflows at the cooling water checking hole. If there is no flow or intermittent flow, check the cooling water passage.



1. Cooling water inlet



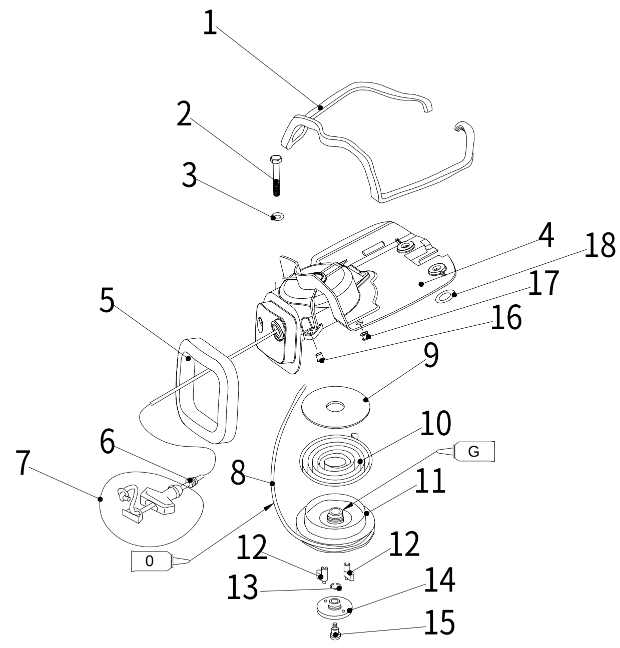
2. Cooling water checking hole

RECOIL STARTER

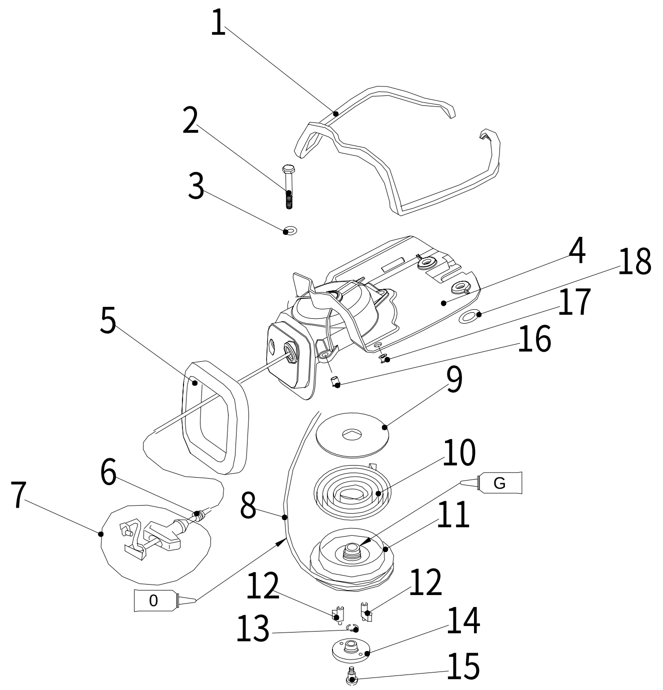
NOTICE

When you service, please wear safety glasses and gloves. Please remove spark plug cap and stopper hang rope from stop switch assy, in case of the accidental start of the engine.

EXPLOSIVE DRAWING



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	F2.6-04070002	发泡密封条	SEAL,FORTHY RUBBER	1	
2	GB/T5782-2000	六角螺栓M6x60	BOLT	3	
3	GB/T97.1-85	平垫圈6	WASHER	3	
4	F2.6-04070100	起动器外壳	CASE,STARTER	1	
5	F2.6-04070001	发泡密封圈	SEAL,FORTHY RUBBER	1	
6	F2.6-04070008	手柄减震圈	DAMPER,HANDLE	1	
7	F4-04130100	起动手柄组件	STARTER HANDLE ASSY	1	
8	F2.6-04070007	锦纶编织线Φ3	WIRE,STARTER	1	
9	F2.6-04070003	起动轮减磨片	WASHER,THRUST	1	
10	F4-04130005	涡形弹簧	SPRING,VOLUTE	1	

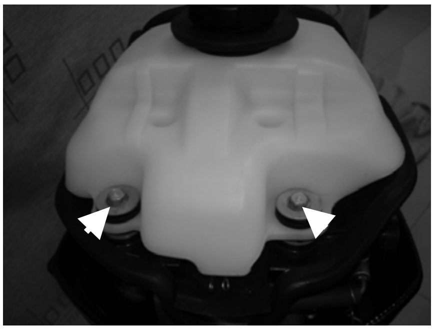


参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
11	F2.6-04070004	起动轮	DRULL,SHEAVE	1	
12	F2.6-04070005	卡瓣	PAWL,DRIVE	2	
13	F4-04130007	起动压板夹簧	BOLT,STARTER	1	
14	F2.6-04070006	起动压板	PLATE,PRESS	1	
15	F4-04130008	起动压板螺钉	SCREW,STARTER	1	
16	F2.6-04000024	起动器垫管A	BUSH ,STARTER	3	
17	F2.6-04000034	油箱减震圈B	DAMPER ,FUEL TANK	2	
18	F2.6-04000025	起动器垫管B	BUSH ,STARTER	2	

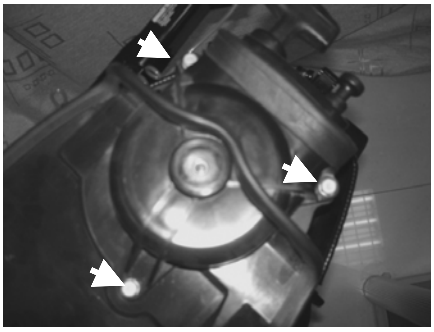
DISASSEMBLING

1. Open the top cowling

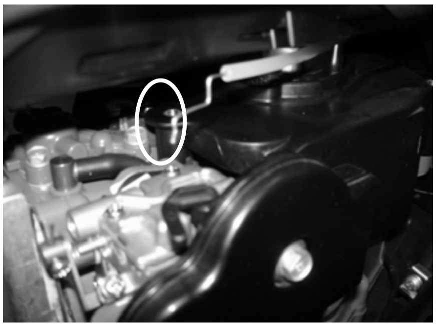
2. Remove bolts fixing the fuel tank.



3. Remove the fuel tank and take down three bolts.



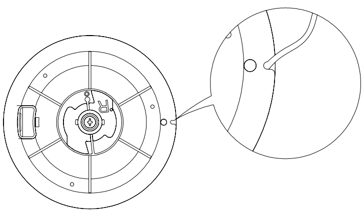
4. Lift the starter and remove choke cable from carburetor.



5. Remove the starter.

STARTER ROPE REPLACEMENT

1. Pull the starter rope out, and insert it in the notch of the sheave drum. Turn the sheave drum clockwise until the volute spring is free.

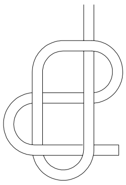


2. Pull the starter rope completely.

3. Remove the starter handle cover from the starter handle, and remove the starter rope. Untie the knot at the end of the starter rope.

4. Pull out the starter rope completely.

5. Insert the new starter rope into the starter assembly, and fix the rope onto the sheave drum and starter handle. At the end of the rope tie a knot as shown.



6. Insert the start rope in the notch of the sheave drum and turn the sheave drum several rounds in counter clockwise direction.

7. Pull the starter handle many times to check if the sheave drum rotates stably. If necessary, repeat step 6 and step 7.

DISASSEMBLING AND INSPECTION

1. Remove the start rope.

2. Remove starter bolt, and remove press plate and drive pawl.

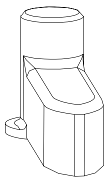
3. Remove the sheave drum

⚠**WARNING**

Uninstall the sheave drum carefully, to ensure that the volute spring does not pop out to hurt people.

4. Remove the volute spring.

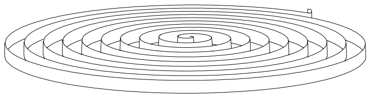
5. Check if the drive pawl is cracked, worn or damaged. If necessary, replace it.



6. Inspect if the drive spring is broken, cranked or damaged. If necessary, replace it.



7. Check if the volute spring is broken, cranked or damaged. If necessary, replace it.



ASSEMBLING

Reverse the steps of disassembling.

INSTALLATION

1. Put starter onto the power unit.

2. Screw the hexagon bolt, and tighten it according to the specified torque.
   Specified torque: 8 Nm

IGNITION SYSTEM

NOTICE

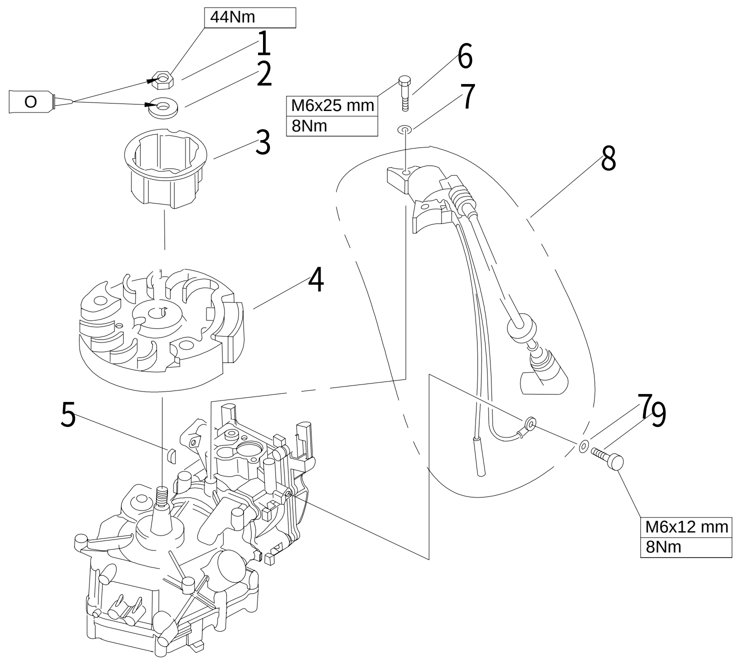
When checking and repairing the ignition system, keep your hand, clothes, hair or personal belongings away from the rotating flywheel.

Check ignition coil on insulated working table, to prevent electricity leak and electroshock.

Don’t touch the ignition coil or spark plug when the engine is running, to avoid electroshock. Keep the wires away from the rotating flywheel, to prevent the wire from being cut, or the insulating layer of the wire from being worn.

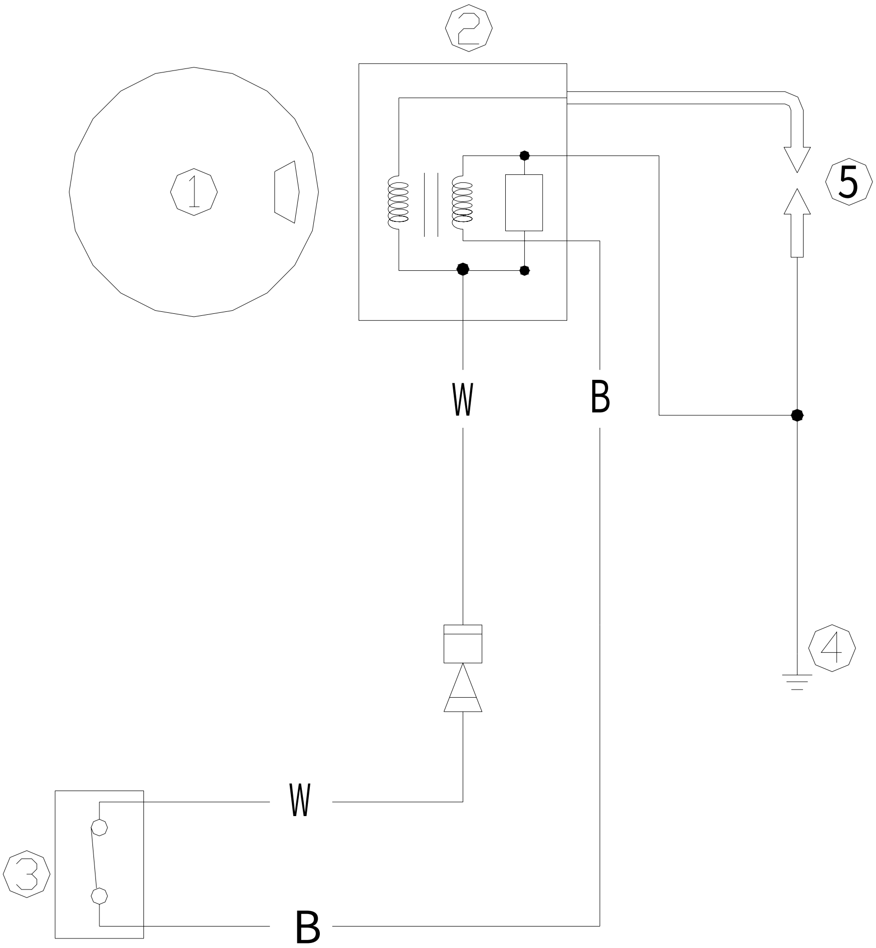
When replacing fixing parts such as nuts and bolts, only parts from original manufacturer or parts made of same material and with strength can be used. Parts must be tightened according to the specified torques.

EXPLOSIVE DRAWING



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	GB/T6171-86	六角螺母M10x1.25	NUT	1	
2	F4-04000021	飞轮垫圈	WASHER	1	
3	F2.6-04000016	起动轴套	PULLEY,STARTER	1	
4	F2.6-04000400	飞轮组件	FLYWHELL ASSY	1	
5	F4-04000019	飞轮半圆键	KEY	1	
6	GB/T5783-2000	六角螺栓M6x25	BOLT	2	
7	GB/T97.1-85	平垫圈6	WASHER	3	
8	F2.6-04000600	高压包组件	HIGH PRESSURE ASSY	1	
9	GB/T5783-2000	六角螺栓M6x12	BOLT	1	

WIRING DIAGRAM



① Flywheel
② Ignition coil
③ Engine stop switch
④ Grounding
⑤ Spark plug

Wire beam color: W White
B Black

SPARK PLUG IGNITION

1. Remove spark plug cap from spark plug. .

2. Connect the ignition tester to the spark plug cap.

3. Start the engine, and observe the sparks through the discharge window of the tester.

⚠ **WARNING**

Do not touch any joint part of the lead wire of the tester.
Keep away from inflammable gas or liquid, to prevent accident resulting from spark ignition.

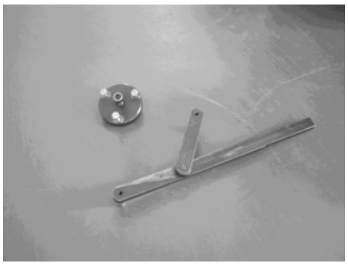
SPARK PLUG CAP

1. Remove the spark plug. Check if the spark plug cap is broken. Replace if necessary.

2. Install the spark plug cap
   Turn it clockwise until it is tight.

FLYWHEEL MAINTENANCE

1. Use flywheel holder to remove the nut and starter pulley; use flywheel puller to remove flywheel.



2. Check if the flywheel is damaged or the permanent magnet part is firm. Replace if necessary.

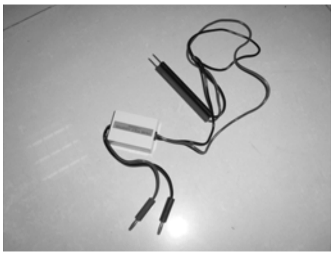
IGNITION COIL INSPECTION

1. Ignition coil peak voltage

① Remove spark plug cap.
② Disconnect ignition coil tip (W).
③ Measure the ignition coil peak voltage output by a digital universal meter and a peak voltage adapter. If below specification, check the ignition coil.
Peak voltage output: 130V (1500 r/min)



Digital universal meter



Peak voltage adapter

2. Ignition coil resistance

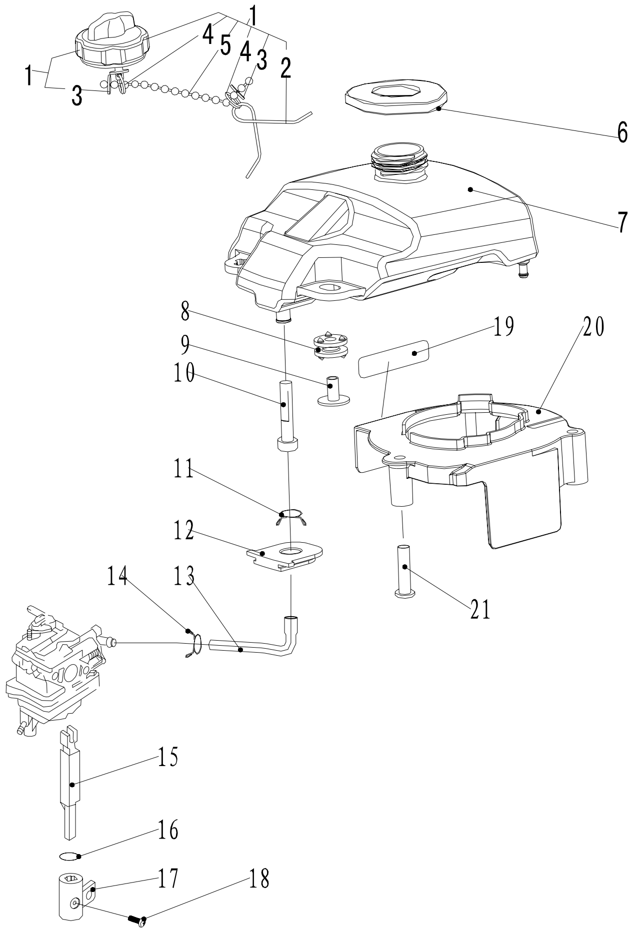
① Remove ignition coil and spark plug cap.
② Measure ignition coil resistance. If out of specification, replace it.
Resistance: 1.6～1.9Ω (Tester (+) pole: white wire; Tester (-) pole: black wire)
5.8～7.0kΩ (Tester (+) pole: white wire; Tester (-) pole: high-voltage wire)

FUEL SYSTEM

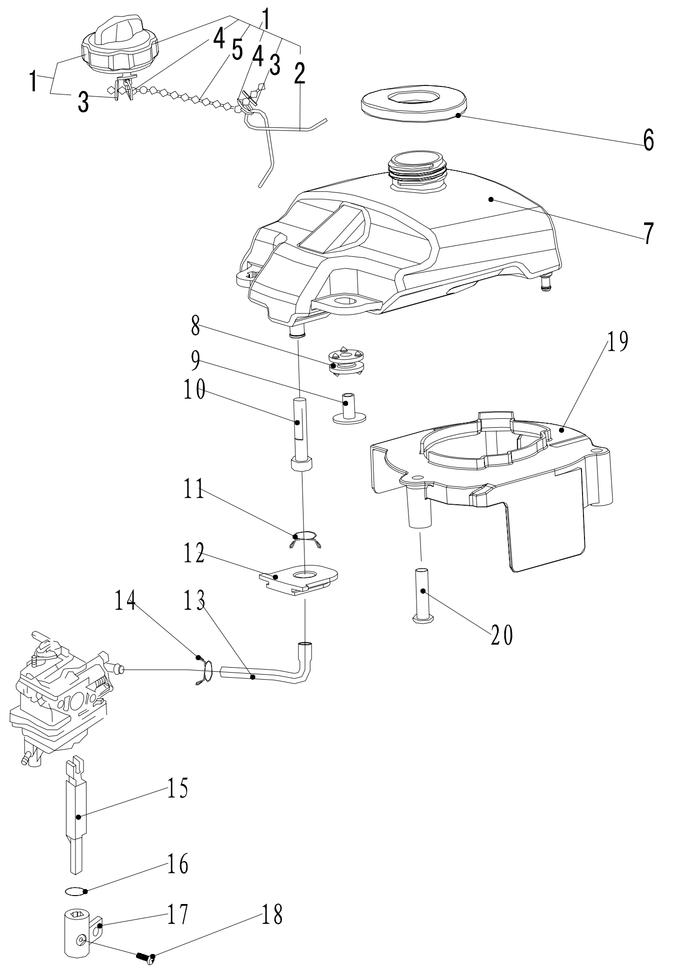
NOTICE

Gasoline is inflammable and highly volatile liquid. Its leakage can cause fire and explosion. Don't start the engine before all joints of the fuel system are connected or installed. When completing all maintenance steps, force short-time pressure to the fuel system to check for leakage.

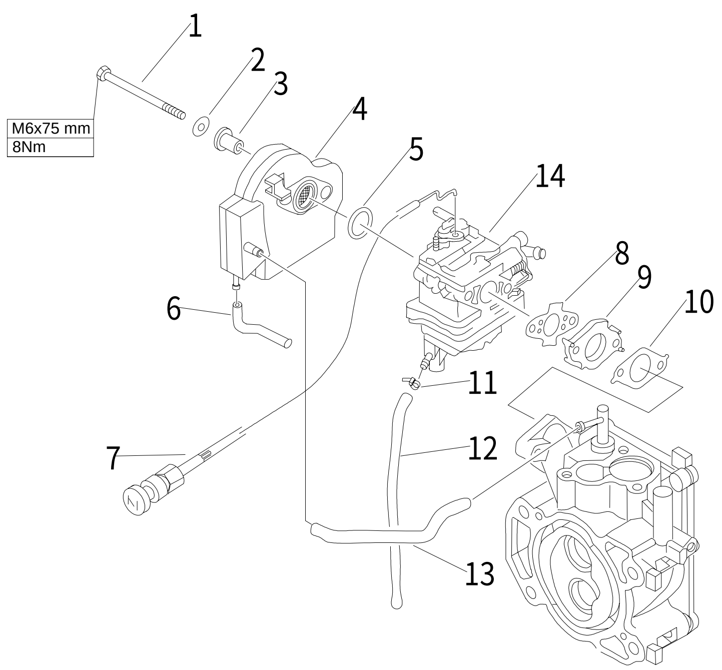
EXPLOSIVE DRAWING



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	F4-04120100	油箱盖组件	TANK COVER ASSY	1	
2	F4-04120103	防脱落扭簧	SPRING ,PREVENT DESQUAMATING	1	
3	F4-04120105	防脱落卡片	SHEET METAL ,PREVENT DESQUAMATING	2	
4	F4-04120106	钢丝锁圈	EYELET ,STEEL WIRE	2	
5	F4-04120104	防脱链	CHAIN ,PREVENT DESQUAMATING	1	
6	F2.6-04000033	油箱口减震圈	WASHER ,DAMPER	1	
7	F2.6-04000026	油箱	FUEL TANK ,INNER	1	
8	F2.6-04000027	油箱减震圈A	DAMPER ,FUEL TANK	2	
9	F2.6-04000028	油箱减震圈垫管	TUBE ,DAMPER	2	
10	F4-04120005	油箱滤油芯	FILTER ,FUEL TANK	1	



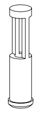
参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
11	F4-05000010	油管夹簧A	SPRING ,OIL TUBE	1	
12	F4-04000032	油管减震块	DAMPER ,OIL TUBE	1	
13	F2.6-04000029	燃油管	OIL TUBE	1	
14	F2.6-04000030	油管夹簧C	SPRING ,OIL TUBE	1	
15	F2.6-04000017	油开关连接杆	CONNECTING-ROD,OIL SWITCH	1	
16	JASOF404 24-014	油开关密封圈Φ13.8x2.4	O-RING	1	
17	F2.6-00000004	油开关旋钮	KNOB ,OIL SWITCH	1	
18	GB/T823-2000	十字槽小盘头螺钉M5x8	SCREW ,PAN HEAD	1	
19	F2.6-04000022	飞轮导风罩	VENTILATIVE COVER	1	
20	F2.6-04000023	导风罩垫管	TUBE ,WASHER	3	



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	GB/T5782-2000	六角螺栓M6x75	BOLT	2	
2	GB/T97.1-85	平垫圈6	WASHER	2	
3	F2.6-04000012	进气消音器衬管	BUSH, INTAKE SILENCE	2	
4	F2.6-04000300	进气消音器组件	SILENCE ASSY, INTAKE	1	
5	JASO F404 24-021	进气消音器O形圈	O-RING	1	
6	F2.6-04000015	回气管BΦ2.5xΦ7x72	HOSE	1	
7	F2.6-04070200	阻风门手柄组件	CHOCK HANDLE ASSY	1	
8	F2.6-04000018	化油器密封垫B	GASKET, CARBURETOR AIRPROOF	1	
9	F2.6-04000011	化油器垫块	INSULATOR, CARBURETOR	1	
10	F2.6-04000010	化油器密封垫A	GASKET, CARBURETOR AIRPROOF	1	
11	HT2.5x60	尼龙扎带60x2.5	CLAMP	1	
12	F2.6-04000013	化油器放油管Φ4xΦ7x140	HOSE	1	
13	F2.6-04000014	回气管AΦ5xΦ9x130	HOSE	1	
14	F2.6-04000200	化油器总成	CARBURETOR	1	

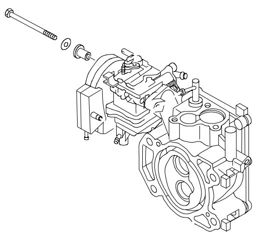
FUEL TANK REMOVAL AND INSPECTION

1. Open the top cowling.
2. Remove two bolts fixing the fuel tank.
3. Pull the fuel tank out.
4. Remove the fuel pipe from fuel tank.
5. Inspect if the fuel tank and fuel tank cover for crack, leakage or damage. Replace if necessary.
6. Inspect the tank strainer for dirt or clog. Clean or replace if necessary.

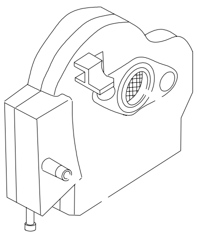


INTAKE SYSTEM REMOVAL AND INSPECTION

1. Remove the bolt fixing air filter.



2. Remove air filter and carburetor.
3. Check if air filter is cracked or damaged. Replace it if necessary.

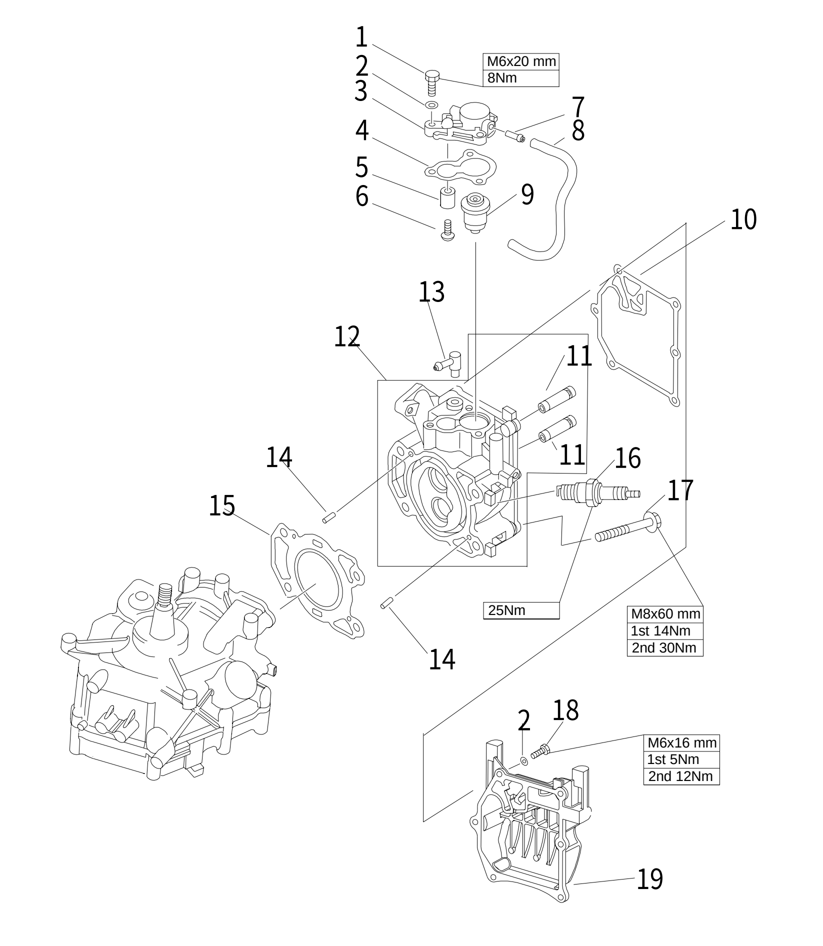


POWER UNIT

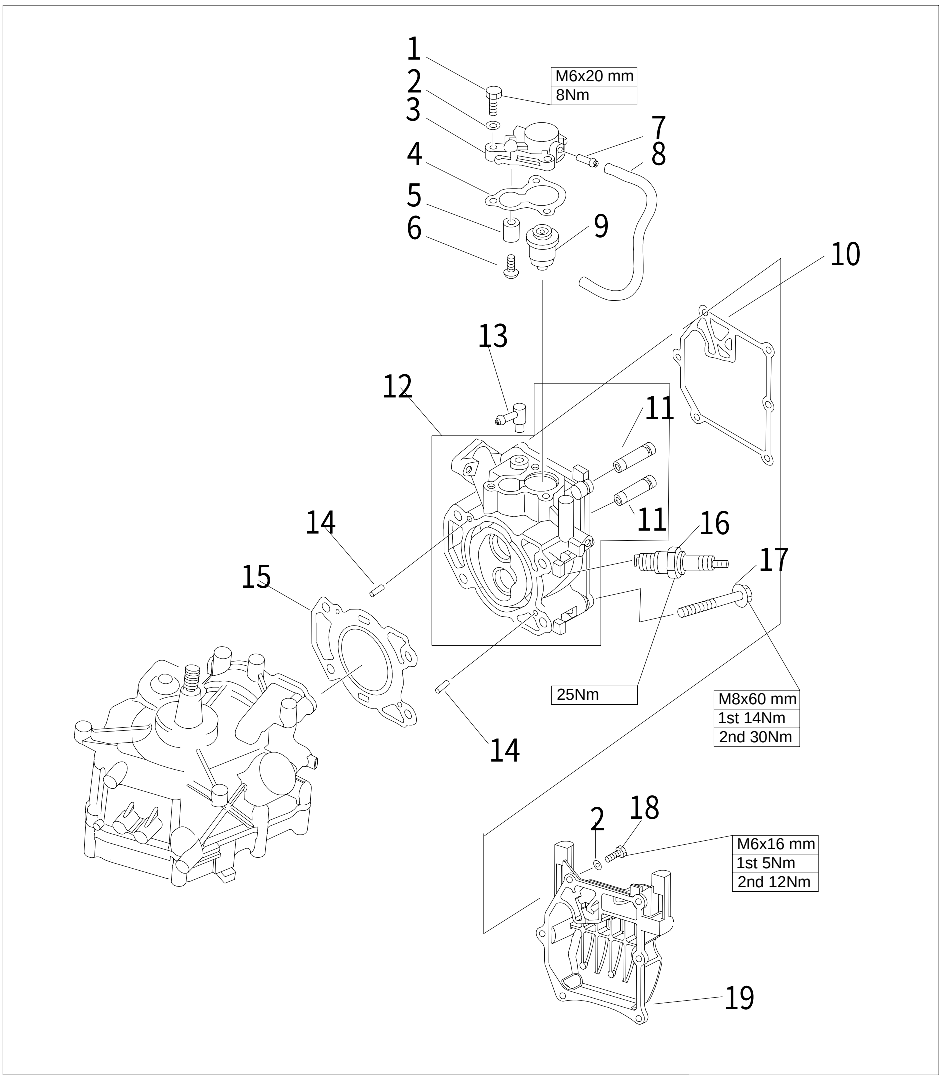
NOTICE

To avoid accidental start of outboard engine during maintenance, please take enough safety measures to cut the ignition system. For instance, remove engine stop lanyard from engine stop switch assembly, and remove spark plug cap from spark plug.

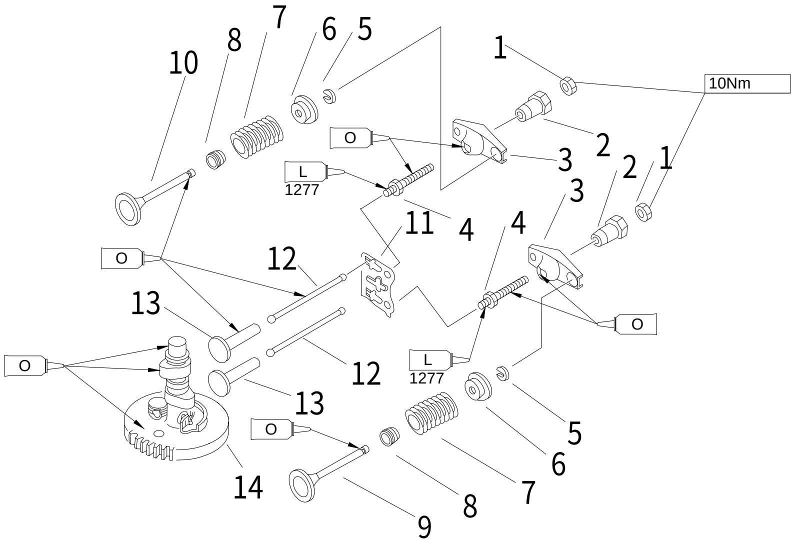
EXPLOSIVE DRAWING



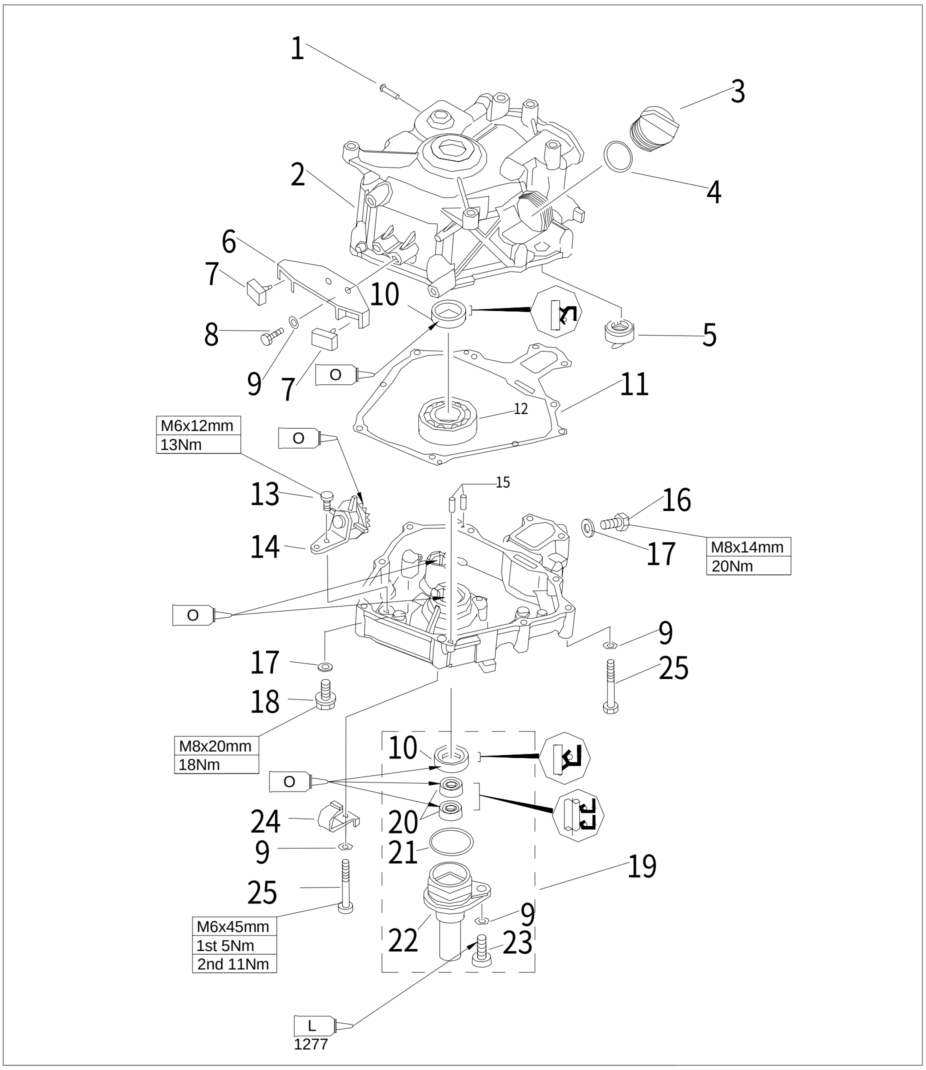
参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	GB/T5783-2000	六角螺栓 M6X20	BOLT	3	
2	GB/T97.1-85	平垫圈6	WASHER, PLATE	9	
3	F2.6-04000501	节温器盖	COVER, THERMOSTAT	1	
4	F4-04000011	节温器盖密封垫	GASKET, THERMOSTAT	1	
5	F4-04070003	节温器盖阳极	ANODE	1	
6	GB/T818-85	十字槽盘头螺钉M5x25	SCREW, PAN HEAD	1	
7	F4-04010002	气咀	PIPE, JOINT	1	
8	F2.6-04000007	水管ф5xф9x245	PIPE, WATER	1	
9	T15-04000010	节温器	THERMOSTAT	1	
10	F2.6-04000005	缸头罩密封垫	GASKET, CYLINDER COVER	1	
11	166F-010104	气门导管	VALVE GUIDE BUSH	2	
12	F2.6-04040100	气缸头组件	CYLINDER HEAD ASSY	1	
13	F15-04000005	水嘴组件（ф7/ф6）	SPILE WATER ASSY	1	
14	F15-00000013	定位销ф4x12	PIN	2	



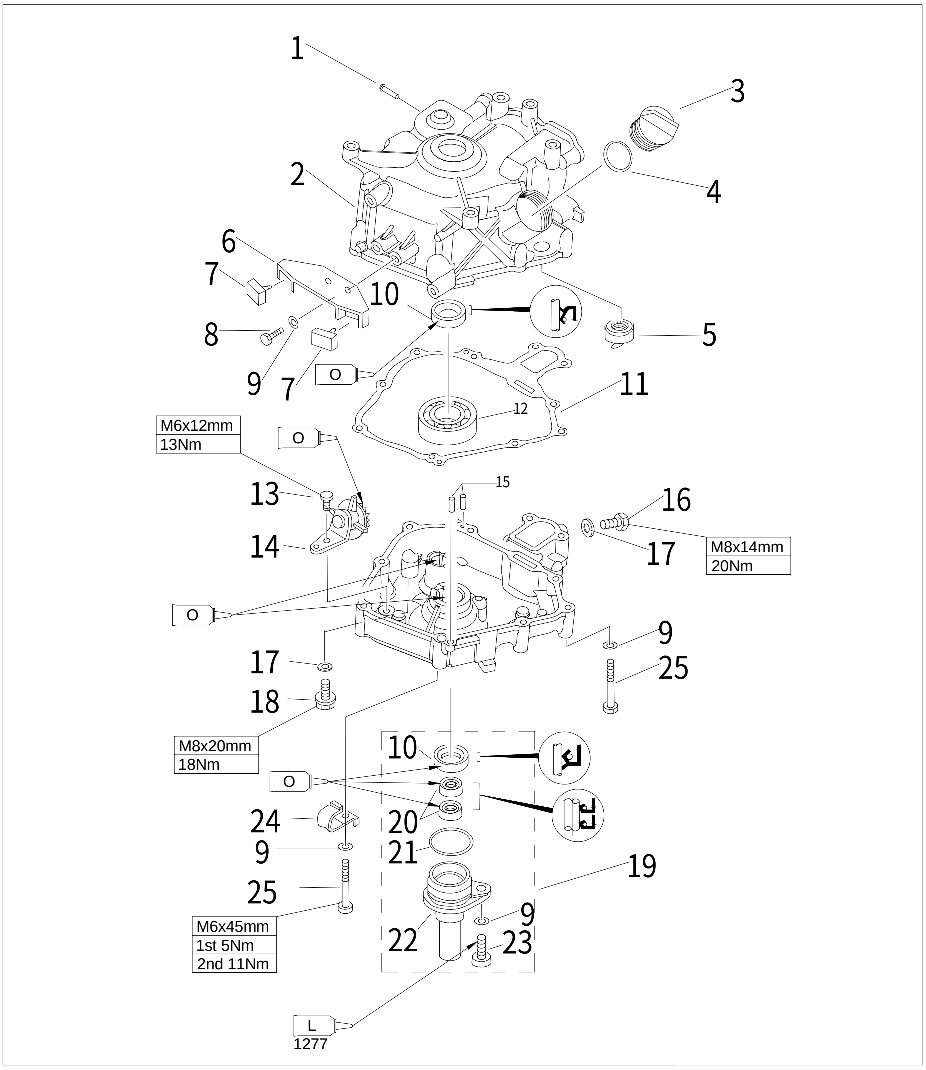
参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
15	F2.6-04000001	缸头复合垫	GASKET, CYLINDER HEAD	1	
16	BPR7HS	火花塞	SPARK PLUG	1	
17	F4-04000034	气缸头螺栓B	BOLT	4	
18	GB/T5783-2000	六角螺栓M6x16	BOLT	6	
19	F2.6-04000006	缸头罩	COVER, CYLINDER HEAD	1	



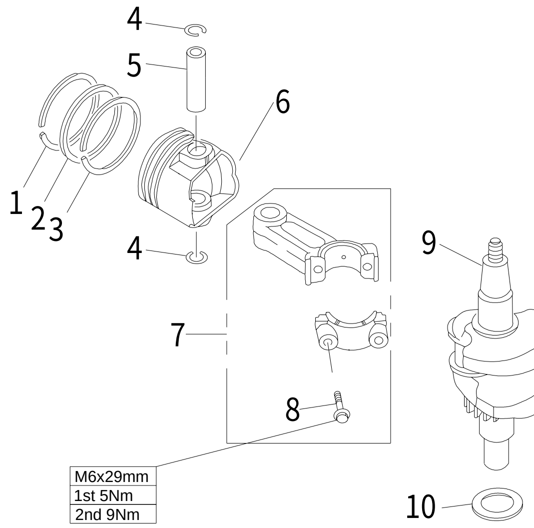
参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	166F-010011	锁紧螺母	LOCK NUT	2	
2	166F-010010	摇臂球座	PIVOT, ROCKER ARM	2	
3	166F-010009	摇臂	ARM,VALVE ROCKER	2	
4	116F-010008	摇臂螺杆	BOLT, ROCKER ARM	2	
5	166F-010006	气门锁片	CLAMP, VALVE	2	
6	F4-04080010	气门弹簧座	SPRING,VALVE RETAINER	2	
7	F4-04080008	气门弹簧	SPRING, VALVE STEM	2	
8	166F-010003	进气门油封	SEAL,VALVE STEM	2	
9	166F-010001	进气门	VALVE,INTAKE	1	
10	166F-010002	排气门	VALVE,EXHAUST	1	
11	F2.6-04040001	导向板	PLATE,PUSH ROD	1	
12	F2.6-04000002	气门推杆	ROD,VALVE PUSH	2	
13	166F-000001	气门挺柱	LIFTER,VALVE	2	
14	F2.6-04000100	凸轮减压组件	CAMSHAFT ASSY	1	



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	T15-04010202	出水嘴	PIPE,WATER	1	
2	F2.6-04010100	曲轴箱体	CRANK CASE	1	
3	F15-07050004	加油口盖	PLUG,OIL	1	
4	JASO F404 31-02	加油口O型圈	O-RING	1	
5	F2.6-04010102	油位器	GAUGE,LEVEL	1	
6	F2.6-04000008	减震架	BRACKET ,DAMPER	1	
7	F2.6-04000009	橡胶减震块	RUBBER BLOCK ,DAMPER	2	
8	GB/T5783-2000	六角螺栓M6x20	BOLT	2	
9	GB/T97.1-85	平垫圈6	WASHER	11	
10	F2.6-04010001	曲轴油封SD 20x30x7 HS	OIL SEAL	2	
11	F2.6-04000004	曲轴箱体复合垫	CRANK CASE COMPLEX GASKET	1	
12	62/22C3	深沟球轴承	BALL BEARING	1	
13	GB/T5783-2000	六角螺栓M6x12	BOLT	1	
14	F2.6-04050100	甩油轮组件	GEAR UINT ASSY	1	



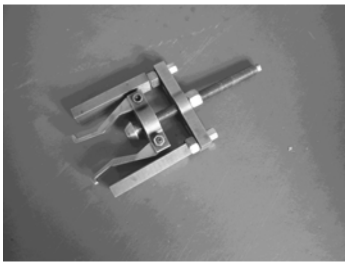
参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
15	F15-00000013	定位销φ4x12	PIN	2	
16	GB/T5783-2000	六角螺栓M8x14	BOLT	1	
17	F4-04000006	放油螺栓密封垫	WASHER	2	
18	F4-04000001	放油螺栓M8x20	BOLT ,DISCHARGING OIL	1	
19	F2.6-04060000	油封壳体组件	OIL SEAL SHELL ASSY	1	
20	F2.6-04060002	驱动轴上油封K-5657	OIL SEAL	2	
21	F4-04060002	油封壳体O型密封圈	O RING	1	
22	F2.6-04060001	油封壳体	SHELL ,OIL SEAL	1	
23	GB/T5783-2000	六角螺栓M8x20	BOLT	1	
24	F25-05000013	线卡A	CLAMP A	1	
25	GB/T5782-2000	六角螺栓M6x45	BOLT	8	

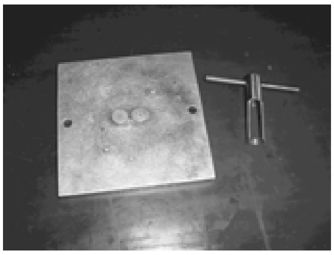


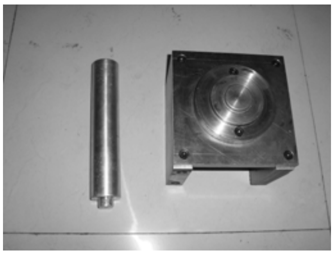
参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	F2.6-04020002	活塞气环1	PISTON RING 1	1	
2	F2.6-04020003	活塞气环2	PISTON RING 2	1	
3	F2.6-04020004	活塞组合油环	COMBINED OIL RING	1	
4	F2.6-04020006	活塞销卡簧	CIRCLIP	2	
5	F2.6-04020005	活塞销	PIN,PISTON	1	
6	F2.6-04020001	活塞	PISTON	1	
7	F2.6-04020100	连杆组件	ROD, CONNECTING	1	
8	F2.6-04020103	连杆螺栓M6x30	BOLT	2	
9	F2.6-04030000	曲轴组件	CRANK ASSY	1	
10	F2.6-04000003	箱盖减磨片	WASHER,PLATE	1	

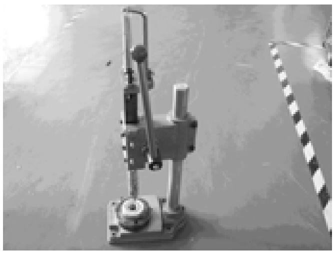
SPECIAL TOOLS


Piston slider

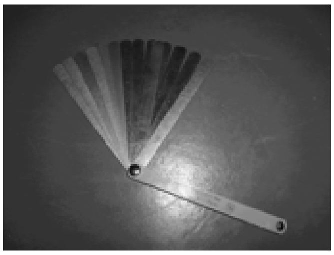

Bearing puller


Valve spring compressor


Housing bearing installer


Oil seal installer tool


Housing oil seal installer


Space gauge

DISASSEMBLING POWER UNIT FROM OUTBOARD ENGINE

1. Open the top cowling.
2. Remove fuel tank; remove starter.
3. Remove flywheel cover and throttle cable .
4. Remove air filter and carburetor.
5. Remove bolts connecting power unit and upper casing.
6. Carry the power unit and put it onto the working table.

DISASSEMBLING AND INSPECTION

CYLINDER COVER

Disassembling

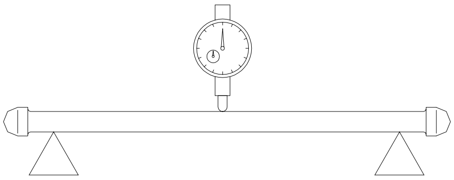
1. Remove the bolts of cylinder head cover.
2. Remove the bolts of the cylinder cover according to the reverse numbering sequence of the cylinder cover.
3. Remove the crankcase cover. Remove the valve push rod.

4. Remove the rocker arm pivot, rocker arm, rocker arm shaft and push rod plate.
5. Use the valve spring compressor to remove intake door and exhaust door.



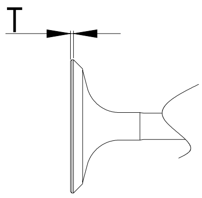
Push rod

Inspect valve push rod runout. Replace if exceeding the specified value.
Valve push rod runout limit: 0.5mm



Valve and valve pipe

1. Inspect the valve seat width. If not in the prescribed range, repair the valve seat.
   Valve seat width: 0.6～0.8mm
2. Inspect the valve margin thickness (T). If not as in the prescribed value, replace the valve.
   The margin thickness of valve:
   Intake door: 0.7mm
   Exhaust door: 1.00mm



3. Inspect the valve stem diameter. If not in the prescribed range, replace the valve.
   The diameter of valve stem:
   Intake valve: 5.475～5.490mm
   Exhaust valve: 5.460～5.475mm
4. Measure the valve stem runout. If exceeding the limit, replace the valve.
   Valve stem runout limit: 0.03mm
5. Measure the inner diameter of the valve pipe.
   The inner diameter of the valve pipe: 5.500～5.512m

CAUTION:
When replacing the valve, please use the new valve pipe and valve oil seal.

Valve spring

1. Measure the free length of valve spring. If less than prescribed value, replace.
   The minimum free length: 34mm

2. Measure the valve spring tilt. If exceeding the prescribed limit, replace.
   The maximum tilt limit: 1.2mm

Valve rocker arm

Check the rocker arm for crack, perforation or damage. Replace if necessary.

Valve pipe replacement

1. Knock out the valve pipe from the direction of combustion room.
2. Knock in the new valve pipe from the direction of the top of cylinder cover.

NOTE:

Coat the oil on the surface of pipe before installation.

3. Bore the inner diameter of pipe to the prescribed value by reamer.
   Inner diameter of valve pipe: 5.500～5.512mm

NOTE:

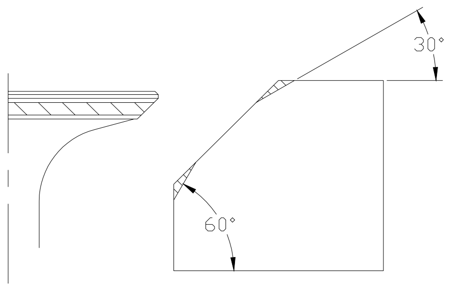
When taking out the reamer, don't rotate it in counter clockwise direction.

Valve seat inspection

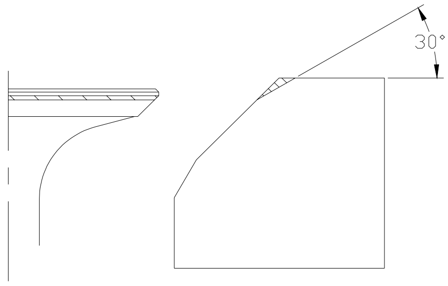
1. Clean the carbon on the valve.
2. Coat a thin layer of bluing dye evenly onto the seal face of the valve seat.
3. Lap the valve on valve seat by valve lapping tool.
4. Measure the valve seat width.
   The valve face is with bluing dye.
   If the valve and valve seat do not match, or the valve seat width does not conform to specified value, reface and lap the valve seat.
   If the contact surface is not even, replace the valve pipe.
   The valve seat width: 0.6～0.8mm
   The maximum valve seat width: 1.1mm

Valve seat cutting

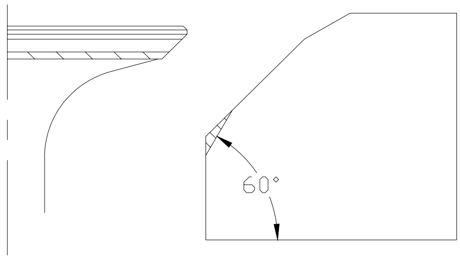
1. Use 45° valve seat cutter to adjust the valve seat width. Turn the cutter clockwise until the valve seat face is smooth.
2. If the valve seat is centered on the valve face but it's too wide, to reduce the valve seat width, use 30° cutter to adjust the top edge of the seat, and use 60° cutter to adjust the bottom edge of the seat.



3. If the valve seat is too narrow and on the top edge of valve surface, use 30° cutter to adjust the top margin of the seat, and use 45° cutter to adjust the valve seat width if necessary.



4. If the valve seal surface is too narrow and on the bottom edge of valve surface, use 60 ° cutter to adjust the bottom edge of the seat, and use 45 ° cutter to adjust the valve seat width if necessary.



5. Coat evenly a thin layer of lapping compound onto valve seat, and lap the valve by lapping tool.
6. Clean up the remaining lapping compound
7. Inspect again the valve seat width.

CAUTION:

Do not overlap the valve. Turn the lapping tool evenly with a downward force of 40~50N. Do not contaminate push rod and valve pipe with lapping compound.

Thermostat

1. Remove thermostat cover and thermostat.
2. Suspend thermostat in the container with water.
3. Heat the container.
4. Inspect valve lift situation in the prescribed water temperature. If out of specification, replace.

Water temperature	The lift height
58～62℃	0.05mm valve lift
Over 70℃	Over 3mm

5. Install thermostat and thermostat cover. Tighten the bolts to specified torque.

CRANKCASE

Disassembling

1. Remove the bolts according to the reverse numbering sequence of the crankcase cover .
2. Remove the crankcase cover.
3. Remove the camshaft and valve lifter.
4. Remove the connecting rod bolt and connecting rod cap, and remove connecting rod and piston assembly.
5. Use clipper to remove circlip, and remove piston pin and piston.

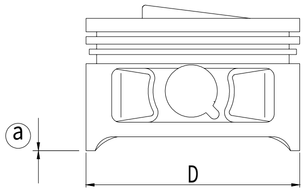
6．Remove crankcase and crankcase gasket.
7．Remove oil splasher gear assembly.
8．Remove oil seal shell bolts, and remove oil seal shell and oil seal.

Piston

Measure piston outside diameter at the specified measuring point. If out of specification, replace.

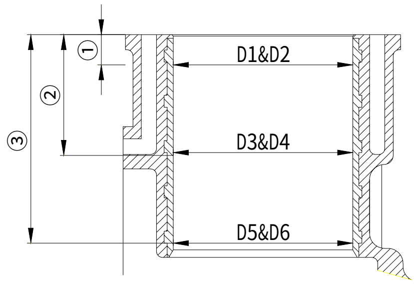
Piston diameter: 53.950～53.965mm

Measuring pointⓐ: 0mm



Cylinder bore

1. Measure cylinder bore separately at measuring point ①, ②, ③. At each point, measure the cylinder bore at places D1, D3, D5 parallel to the crankcase and at places D2, D4, D6 vertical to the crankshaft.
   Measuring point height:
   ①100mm；
   ②40mm；
   ③70mm
   Cylinder bore: 54.00～54.015mm
   Limit size: 54.10mm



2. Calculate taper limit and round limit. If out of specification, replace crankcase.
   Taper limit: 0.08mm(D1-D5, D2-D6)
   Round limit: 0.05mm(D2-D1, D6-D5)

Piston pin diameter

Measure piston pin outside diameter. If out of specification, replace the piston pin.

Piston pin outside diameter: 11.996～12.000mm

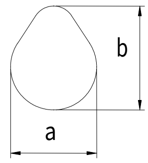
Piston ring

1. Push the piston ring parallel with the piston into the specified measuring point of the cylinder (10mm from conjunction surface).
2. Measure end gap by space gauge. If out of specification, replace the piston ring.
   End gap (installed) / limit size: Top ring 0.15～0.30mnm/0.4mm
   2nd ring 0.30～0.45mm/0.6mm
   Oil ring 0.2～0.7mm/0.9mm
3. Install piston ring to piston, and measure side clearance between piston ring and its slot by clearance gauge. If out of specification, replace the piston ring.
   Side clearance: Top ring 0.04～0.08mm
   2nd ring 0.02～0.06mm
   Oil ring 0.06～0.16mm

Camshaft decompressor

1. Inspect camshaft decompressor, gear, and weight. If gear is worn/damaged/cracked, replace. If weight is unsmoothly moving, replace.

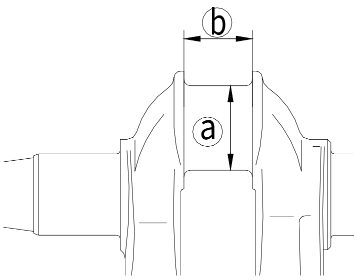
2. Measure camshaft lobe diameterⓐ and height ⓑ. If out of specification, replace it.
ⓐCamshaft: 21.950～22.050mm
ⓑCamshaft: 26.136～26.239mm



3. Measure camshaft diameter. If out of specification, replace the camshaft.
Camshaft journal wear limit: 14.934mm

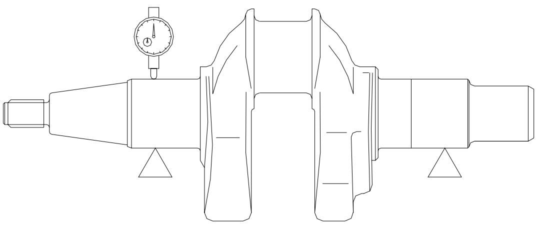
Crankshaft

1. Measure crankshaft brace. If out of specification, replace.



Crankshaft brace diameterⓐ: 23.969～23.984mm
Crankshaft brace width ⓑ: 21.0～21.1mm

2. Measure crankshaft runout. If out of specification, replace.



Crankshaft runout limit: 0.01mm

Oil clearance

1. Put a piece of plastic space gauge on to the crankpin in parallel to the crankshaft.
2. Assemble the connecting rod to the crankpin.
3. Tighten the connecting rod bolts to the specified torque.
   Tightening torque: First time 5 Nm
   Second time 9Nm
4. Remove the connecting rod, measure the compressed width of the plastic space gauge. If out of specification, replace the connecting rod.
   Oil clearance: 0.016～0.046㎜

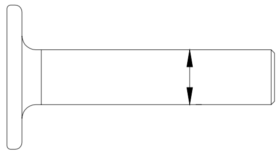
Note:

Don't rotate the connecting rod before completing measurement.

Valve lifter

1. Inspect valve lifter for wear or damage. Replace if necessary.

2. Measure valve lifter outside diameter. If out of specification, replace the valve lifter.
   Valve lifter outside diameter: 7.9650mm



Oil splash gear

Inspect oil splash gear unit, if slow-moving/wear/damage/crack, replace.

Crankshaft bearing

Inspect bearing, if pitting/rumbling, replace.

NOTE:

Don’t remove bearing unless you replace it.

Oil seal housing

1. Inspect oil seal housing for crack/damage. Replace if necessary.
2. Inspect O-ring for crack/damage. Replace if necessary.

Crankcase and crankcase cover

1. Inspect crankcase cover. If cracked/damaged, replace.
2. Inspect cooling water passage for dirt or clog. Clean if necessary.

FULL INSTALLATION

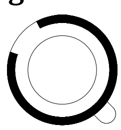
Piston connecting rod installation

Install piston, connecting rod, piston pin and piston pin circlip.

NOTE:

When installing, make sure that the mark on the connecting rod is at the same side of the mark on the piston crown.

Use new piston pin circlip. Make sure that circlip gap is not aligned with the circlip slot gap.



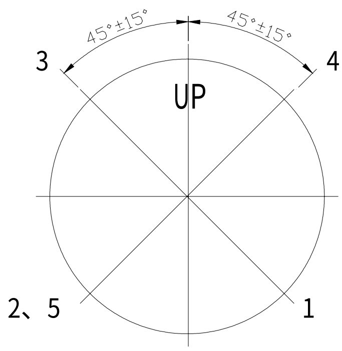
Piston ring installation

1. Install oil ring, 2nd ring and top ring.

NOTE:

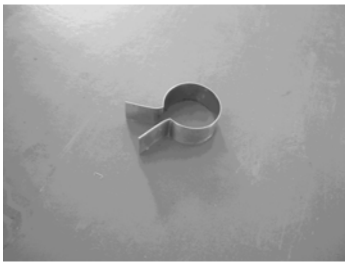
Make sure that the mark is toward the piston crown when installing the 2nd ring.

2. Picture of the piston ring gap
   Oil ring end gap 1 (lower rail)
   Oil ring end gap 2 (expanded ring)
   Oil ring end gap 3 (upper rail)
   2nd piston ring end gap 4
   Top piston ring end gap 5



Piston installation

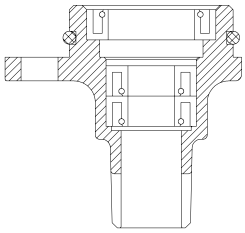
Use piston slider to install piston, and make sure the piston crown “UP” is toward the flywheel side.



NOTE:
Apply motor oil to the piston and piston ring side when installing.

Oil seal housing installation.

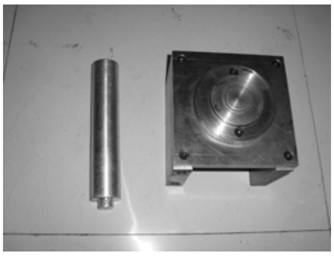
1. Install oil seals 10.8x21x7 (2 pieces) by oil seal installer tool.
2. Install oil seals B20×30×7 by oil seal installer tool.



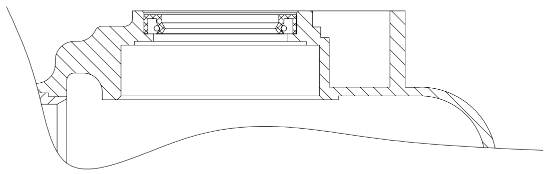
NOTE:
① Apply grease onto new seal before installation.
② Make sure the oil seal spring direction as shown.

Crankshaft installation

1. Install the crankshaft bearing to crankcase by special tools (if change bearing). Install oil seal.


Housing bearing installer


Housing oil seal installer


Oil seal installing direction

NOTE:
Fit the bearing with its manufacturer’s mark toward the direction of the flywheel side. Apply motor oil to the new oil seal installing.

2. Install crankshaft to crankshaft case.

3. Install connecting rod cover, and tighten the connecting rod bolt to the specified torque.
   Specified torque: 12 Nm

NOTE:
Apply motor oil to moving parts before installing.

Camshaft installation

1. Install valve lifter.
2. Install camshaft. Make sure that the camshaft gear mark is aligned with the camshaft timing gear mark.

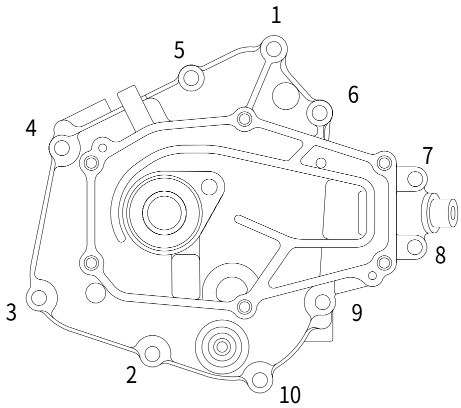
NOTE:

Apply motor oil to moving parts before installing.

Crankcase cover installation

1. Install oil seal housing.
2. Install oil splasher gear assembly.
3. Install crankcase cover, and tighten the bolts twice as shown.
   Tightening torque: 1st 5 Nm
   2nd 11 Nm

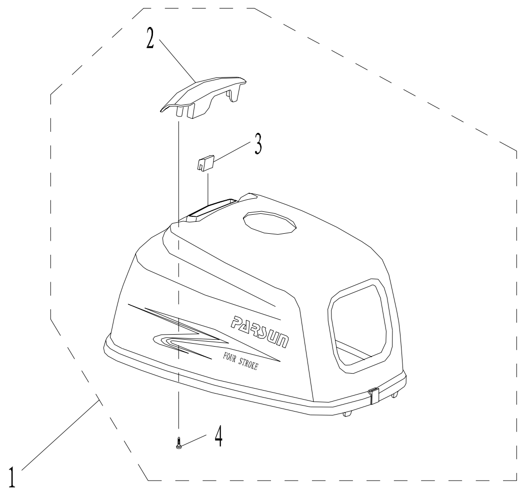
NOTE:
Apply motor oil to moving parts before installing.



UPPER UNIT

TOP COWLING

Explosive drawing



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	F2.6-06000001	顶罩	TOP COWLING	1	
2	F2.6-06000002	进气消音器	SILENCER, INTAKE	1	
3	F2.6-06000003	进气消音器减震块	DAMPER, INTAKE SILENCER	1	
4	GB/T845-85	十字槽盘头自攻螺钉ST3.8x12	SCREW, TAPPING	2	

Disassembling and inspection

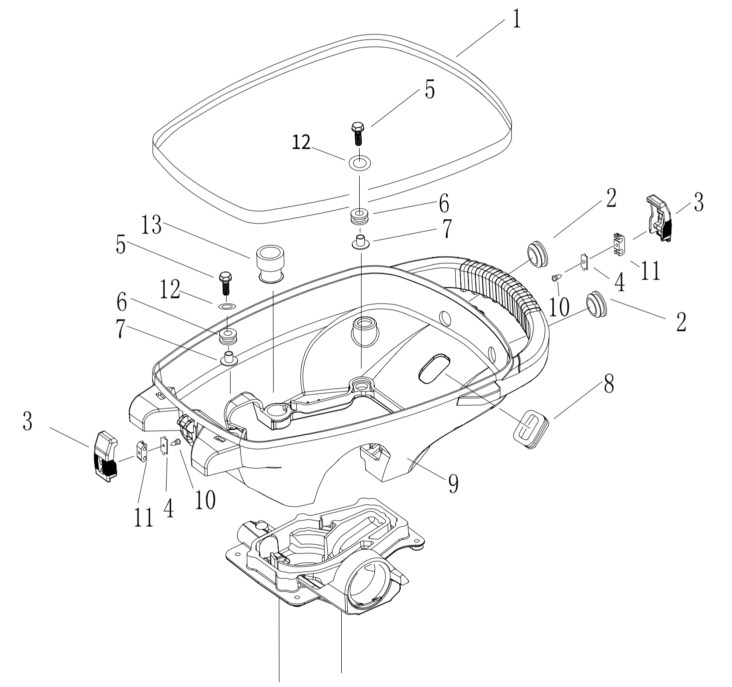
1. Remove intake silencer bolt.

2. Remove intake silencer and intake silencer damper..

3. Inspect if top cowling, intake silencer and intake silencer damper are cracked or damaged. Replace if necessary.

BOTTOM COWLING

Explosive drawing



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	F2.6-05000002	底罩密封条	SEAL, BOTTOM COWLING	1	
2	F2.6-05000004	圆形闷头	RUBBER PLUG, CIRCULAR	2	
3	F2.6-05000008	顶罩锁紧钩	HOOK, LOCKING	2	
4	F2.6-05000010	金属连接杆	METALLIC LINK ROD	2	
5	GB/T5783-2000	六角螺栓M6X25	BOLT	4	
6	F2.6-05000006	底罩减震圈	DAMPER	4	
7	F2.6-05000007	凸缘垫管	TUBE FLANGE	4	
8	F2.6-05000003	长方形橡胶闷头	RUBBER PLUG, QUADRATE	1	
9	F2.6-05000001	底罩	BOTTOM COWLING	1	
10	GB/T845-85	十字槽盘头自攻螺钉ST2.9X5	SCREW, TAPPING	2	
11	F2.6-05000009	锁紧钩连接件	CONNECTER-ROD	2	
12	GB/T96-85	平垫圈6	WASHER 6	4	
13	F2.6-05000005	放油口胶套	RUBBER LOVER	1	

Disassembling and inspection

1. Remove bottom-cowling seal.

2. Remove top cowling locking hook.

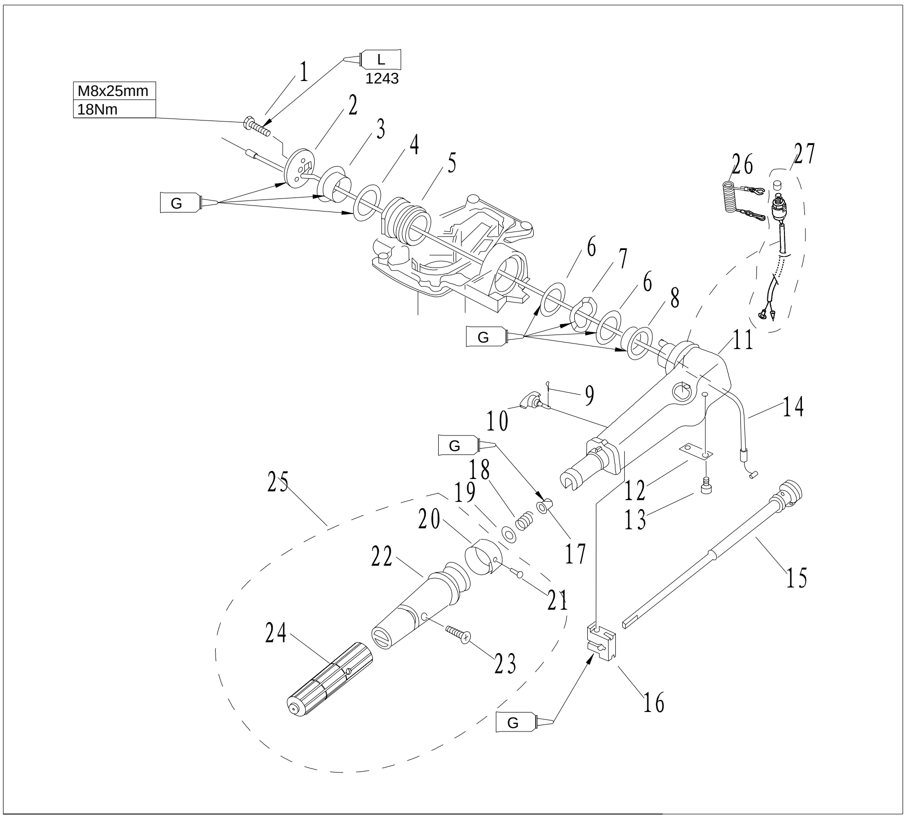
3. Remove circular rubber plug and quadrate rubber plug.

4. Inspect if bottom cowling is cracked or damaged. Replace if necessary.

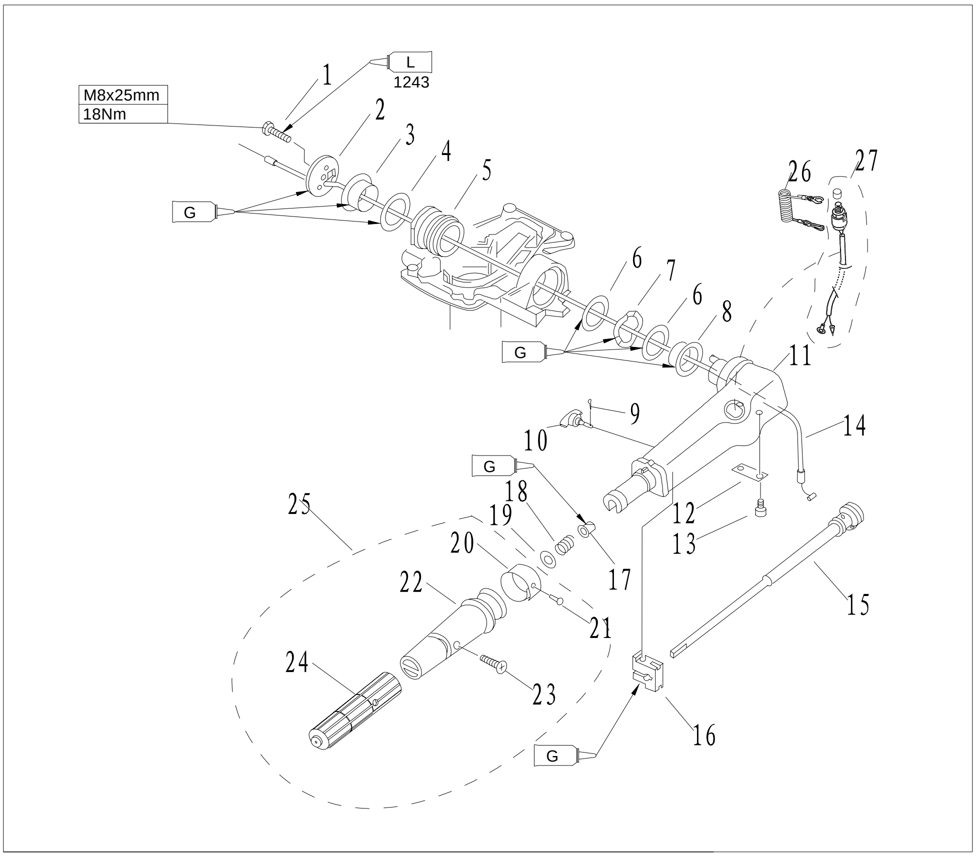
5. Inspect if top cowling locking hook is cracked or damaged. Replace if necessary.

STEERING HANDLE

Explosive drawing



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	GB/T5783-2000	六角螺栓M8x25	BOLT	1	
2	F4-01000014	操舵手柄盖板	COVER,HANDLE STEERING	1	
3	F4-01000008	操舵手柄衬套B	BUSH B,HANDLE	1	
4	F4-01000011	衬套垫圈A	WASHER A,BUSH	1	
5	F4-05000014	操舵手柄减震器组件	HANDLE DAMPER ASSY	1	
6	F4-01000010	衬套垫圈B	WASHER B,BUSH	2	
7	F4-01000012	手柄衬套波形垫圈	BUSH,WAVE	1	
8	F4-01000009	操舵手柄衬套A	BUSH A,HANDLE	1	
9	GB/T91-86	开口销φ1.6x12	PIN,COTTER	1	
10	F4-01090200	阻力调整旋钮组件	BOLT ,FRICTION ADJUSTING	1	



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
11	F4-01090001	操舵手柄	HANDLE,STEERING	1	
12	F4-01090002	节气门杆固定板	STAY	1	
13	GB/T818-85	十字槽盘头螺钉M5x12	SCREW,PAN HEAD	2	
14	F2.6-02010003	油门钢索组件	THROTTLE CABLE ASSY	1	
15	F4-01090100	节气门杆组件	LEVER ,THROTLLE ASSY	1	
16	F4-01090003	操舵手柄握把摩擦块	FRICTION	1	
17	F4-01090006	衬套	BUSH	1	
18	F4-01090007	压缩弹簧	SPRING	1	
19	GB/T848-85	小垫圈10	WASHER	1	
20	F4-01090303	油门标志牌	INDICATOR,THROTTLE	1	
21	GB/T827-86	标牌铆钉φ2x5	RIVET	1	
22	T15-01020301	操舵手柄塑胶套	PLASTIC COVER,HANDLE	1	
23	GB/T820-85	十字槽半沉头螺钉M5x24	SCREW	1	
24	T15-01020302	操舵手柄橡胶套	RUBBER COVER,HANDLE	1	
25	T15-01020300	操舵手柄塑胶套组件	STEERING HANDLE ASSY	1	
26	F4-01090401	引擎停止安全索	STOPER,HANG ROPE ASSY	1	
27	F2.6-02010200	急停开关组件	ENGINE STOP SWITCH ASSY	1	

Disassembling and inspection

1. Remove steering handle cover.

2. Remove handle bush, bush washer and wave washer.

3. Remove steering handle damper assembly.

4. Remove friction adjusting bolt.

5. Remove steering handle.

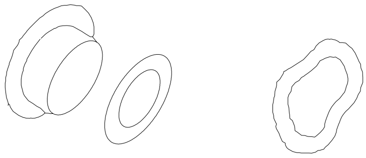
6. Remove throttle cable.

7. Remove throttle lever stay and throttle lever.

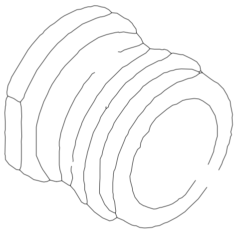
8. Remove engine stop switch.

9. Inspect if steering handle is cracked or damaged. Replace if necessary.

10. Inspect if bush, bush washer and wave washer are cracked or damaged. Replace if necessary.

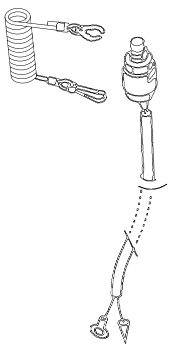


11. Inspect if steering handle damper is cracked or damaged. Replace if necessary.



12. Inspect if throttle cable is cracked or damaged. Replace if necessary.

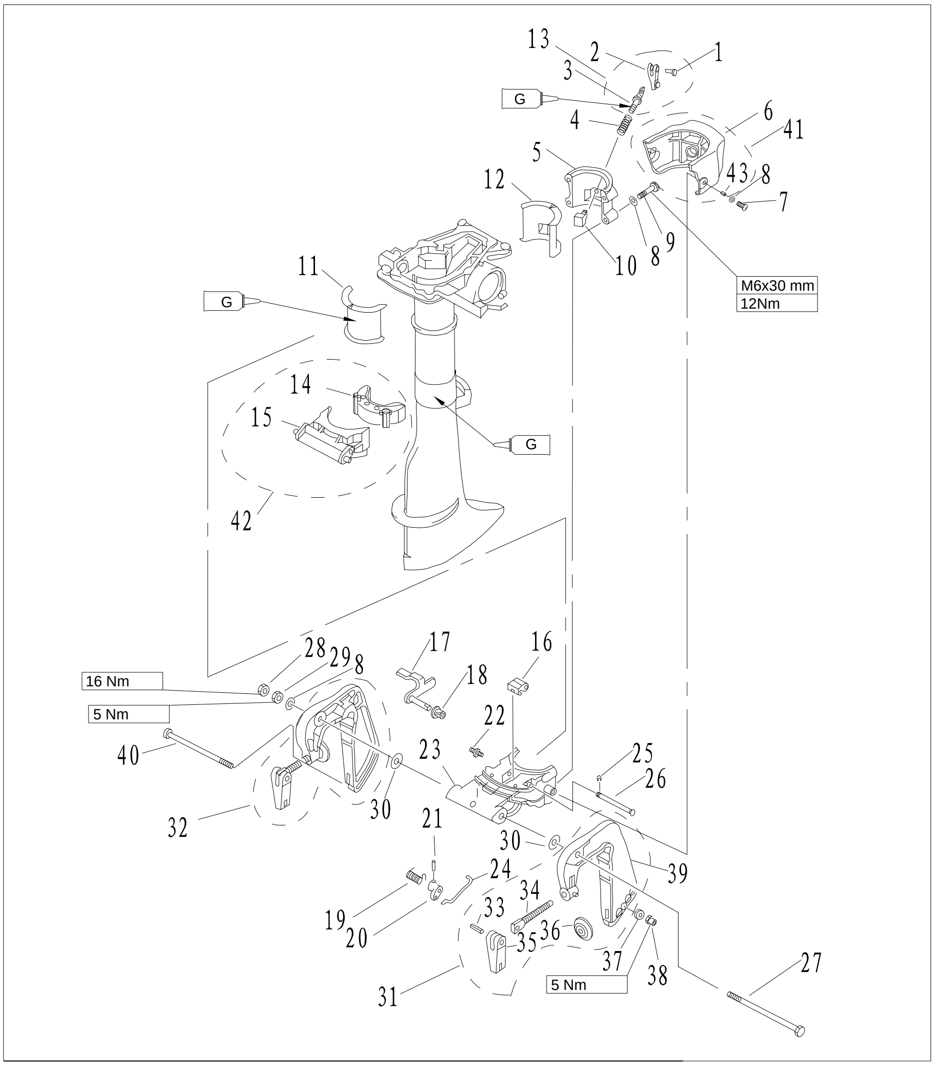
13. Inspect the conduction of engine stop switch. If not to specification, replace it.



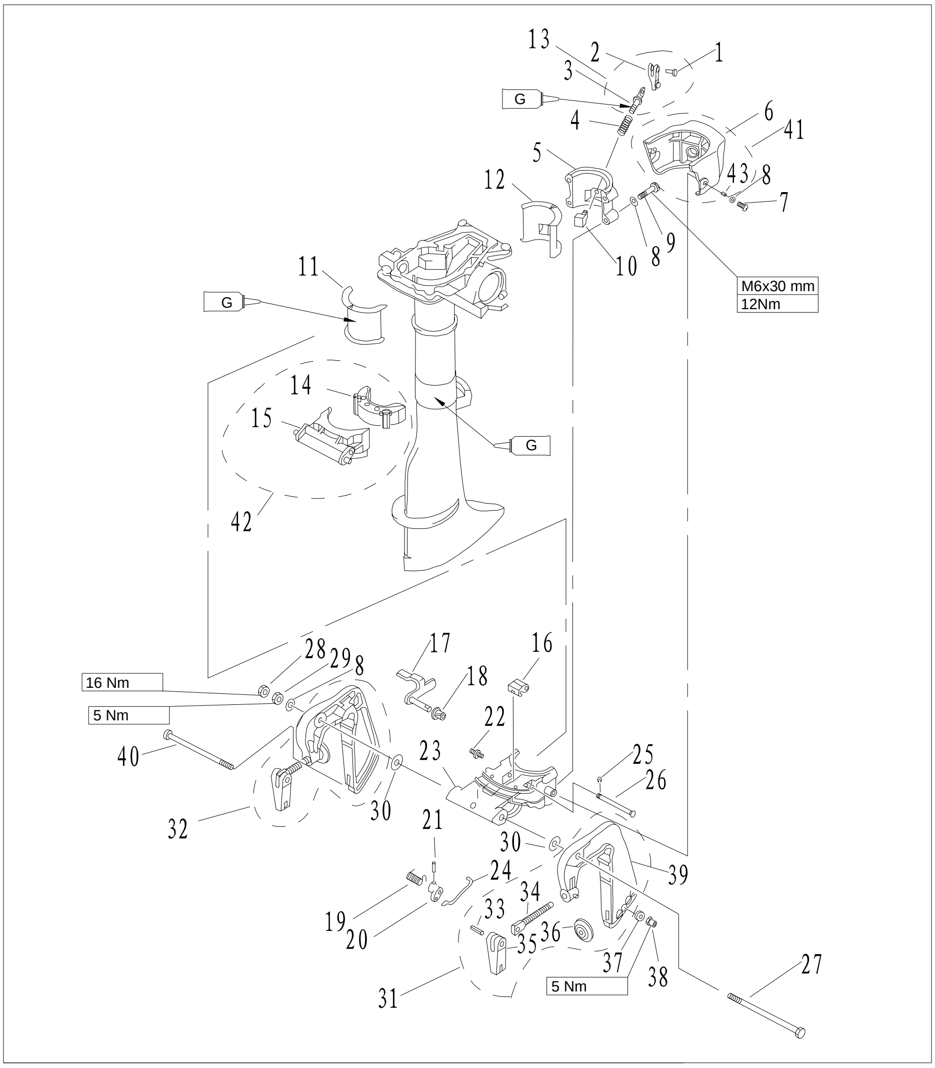
Remove lockplate:	Conducting
Install lockplate:	Not conducting
Push stop switch button:	Conducting

BRACKET

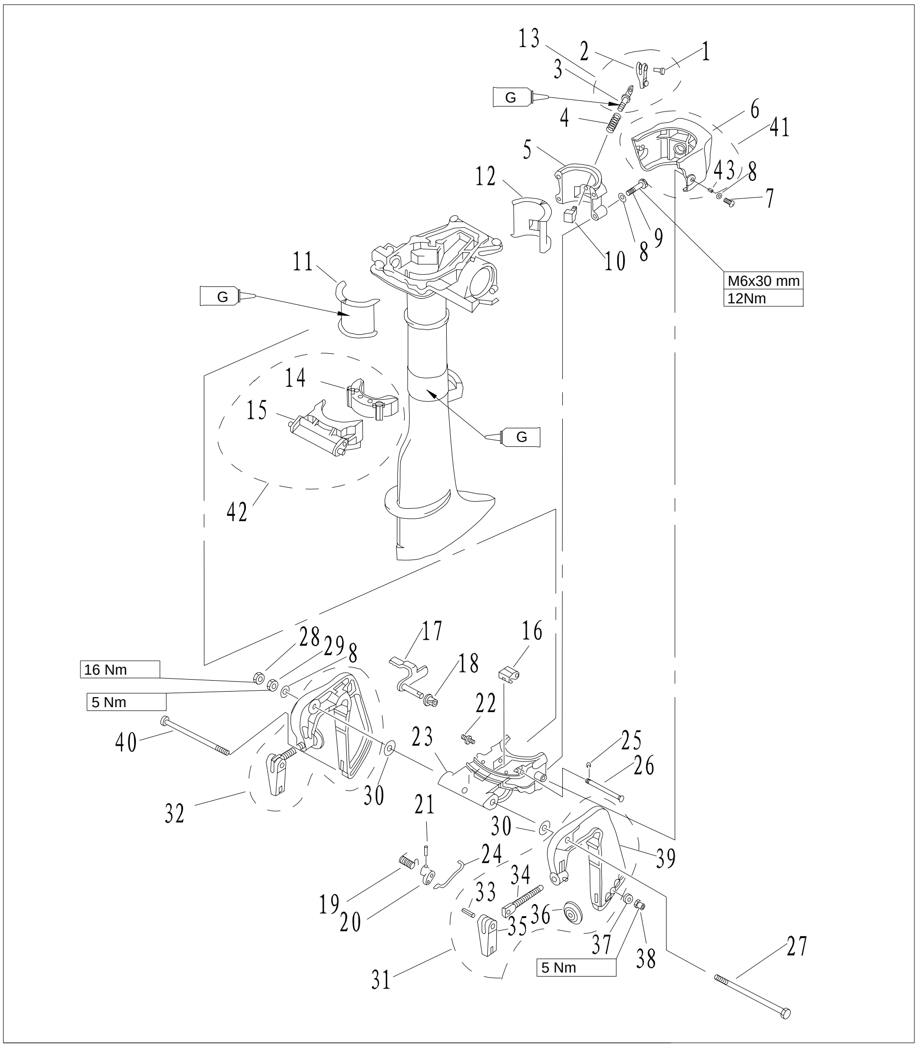
Explosive drawing



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	GB/T875-86	扁平头半空心铆钉4x11	RIVET	1	
2	F4-01060002	锁紧手柄	CLAMP HANDLE	1	
3	F2.6-01050101	锁紧手柄螺杆	LOCKED SCREW	1	
4	F2.6-01050002	压缩弹簧	SPRING	1	
5	F2.6-01050001	旋转支架盖	COVER, SWIVEL BRACKET	1	
6	F2.6-00000101	托架护盖	COVER, BRACKET	1	
7	GB/T818-2000	十字槽盘头螺钉M6x16	SCREW, PAN HEAD	2	
8	GB/T97.1-85	平垫圈6	WASHER	6	
9	GB/T5783-2000	六角螺栓M6x30	BOLT	4	
10	F2.6-01050200	锁紧块组件	LOCKED BLOCK ASSY	1	
11	F2.6-01000003	旋转支架衬套A	BUSHING A	1	
12	F2.6-01000004	旋转支架衬套B	BUSHING B	1	
13	F2.6-01050100	锁紧手柄组件	LOCKED HANDLE ASSY	1	
14	F2.6-01040100	承推减震器	DAMPER	1	



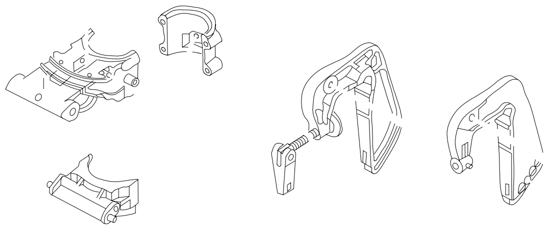
参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
15	F2.6-01040001	承推托架	BRACKET ,THRUST RECEIVE	1	
16	F2.6-01030007	起翘块	LEVER	1	
17	F2.6-01030100	角度锁紧手柄组件	TILT CLAMP HANDLE ASSY	1	
18	F4-01090006	衬套	BUSHING	1	
19	F2.6-01030003	角度锁紧手柄钮簧	SPRING	1	
20	F2.6-01030004	角度定位件	LEVER,TILT LOCK	1	
21	GB/T879.2-2000	轻型直槽弹性圆柱销Φ2x10	PIN	1	
22	GB/T7940.1-95	直通式压注油杯M6	NIPPLE, GREASE	1	
23	F2.6-01030001	旋转支架座	BRACKET,SWIVEL	1	
24	F2.6-01030005	定位件连杆	ROD,TILT LOCK	1	
25	GB/T896-86	开口档圈3.5	CLIP	1	
26	F2.6-01030006	起翘块销轴	PIN	1	
27	F2.6-01000001	六角螺栓M8x135	BOLT	1	
28	GB/T6172.1-85	六角薄螺母M8	NUT	1	



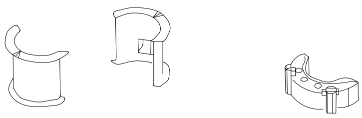
参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
29	GB/T6170-85	六角螺母M8	NUT	1	
30	GB/T96-1985	大垫圈8	WASHER	2	
31	F2.6-01010000	左夹紧托架组件	BRACKET LEFT ASSY	1	
32	F2.6-01020000	右夹紧托架组件	BRACKET RIGHT ASSY	1	
33	F4-01010005	艉板夹紧手柄铆钉	RIVET	2	
34	F4-01010002	艉板夹紧螺杆	CLAMP BOLT	2	
35	F4-01010004	艉板夹紧手柄	CLAMP SHIPBOARD HANDLE	2	
36	F4-01010003	艉板夹紧圆盘	CLAMP PLATE	2	
37	F2.6-01000002	螺栓垫管	BUSH ,BOLT	1	
38	GB/T889.1-2000	非金属嵌件六角锁紧螺母M6	NUT	1	
39	F2.6-01010001	左夹紧托架	BRACKET,CLAMP(LEFT)	1	
40	GB/T5782-2000	六角螺栓M6x125	BOLT	1	
41	F2.6-00000100	托架护盖组件	BRACKET COVER ASSY	1	
42	F2.6-01040000	承推托架组件	THRUST RECEIVE ASSY	1	
43	F2.6-00000102	护盖衬管	BUSH	1	

Disassembling and inspection

1. Remove clamp handle and bracket cover.
2. Remove swivel bracket cover.
3. Remove swivel bracket bushing and damper .
4. Remove clamp bracket
5. Remove swivel bracket.
6. Remove title clamp handle and title lock lever.
7. Inspect the the swivel bracket and clamp bracket for damage or crack. Replace if necessary.



8. Inspect swivel bracket bushing and damper for damage or crack. Replace if necessary.

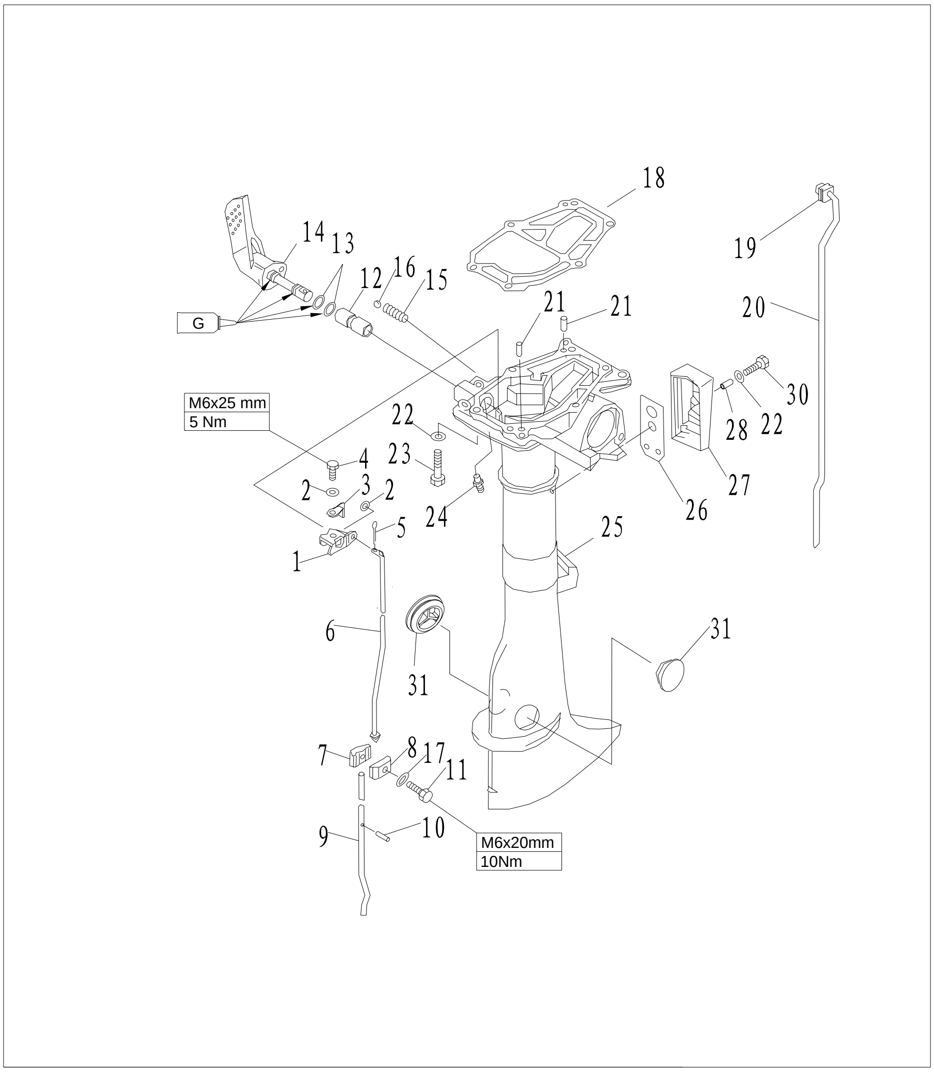


9. Inspect whether title clamp handle and title lock lever are deformed or damaged. Replace if necessary.

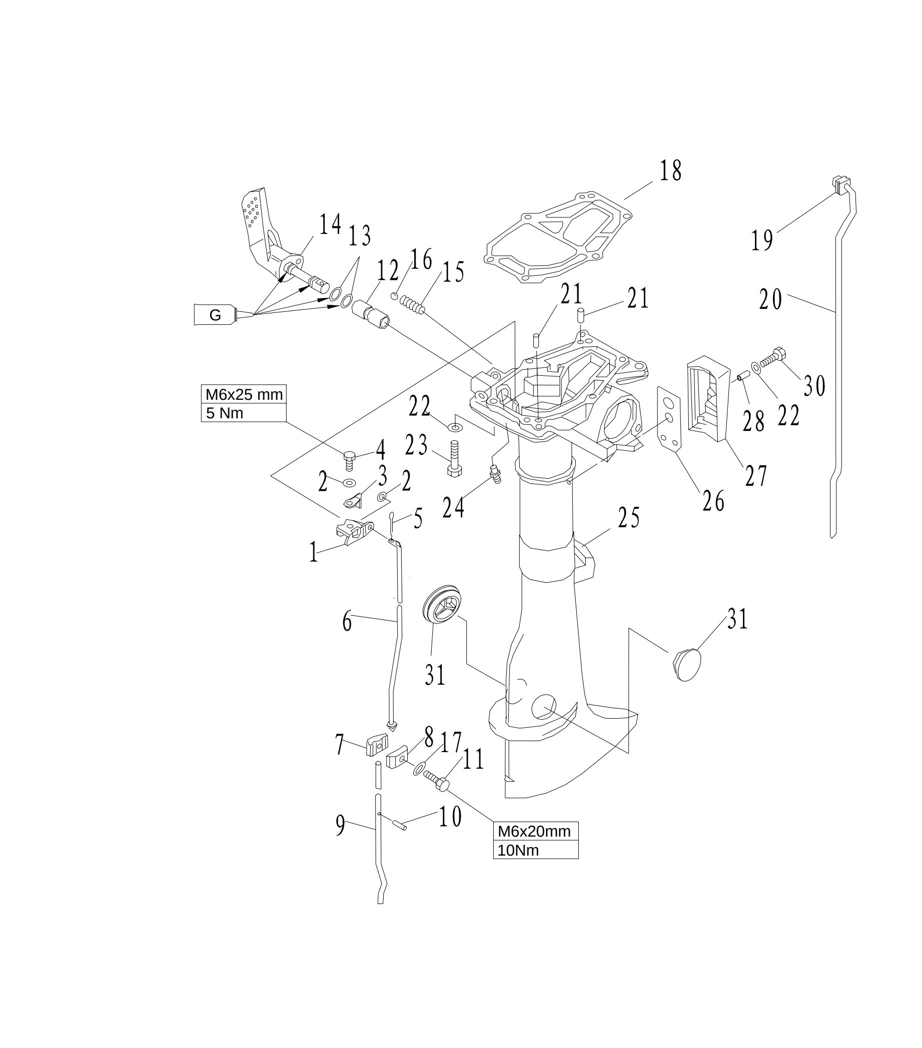


UPPER UNIT

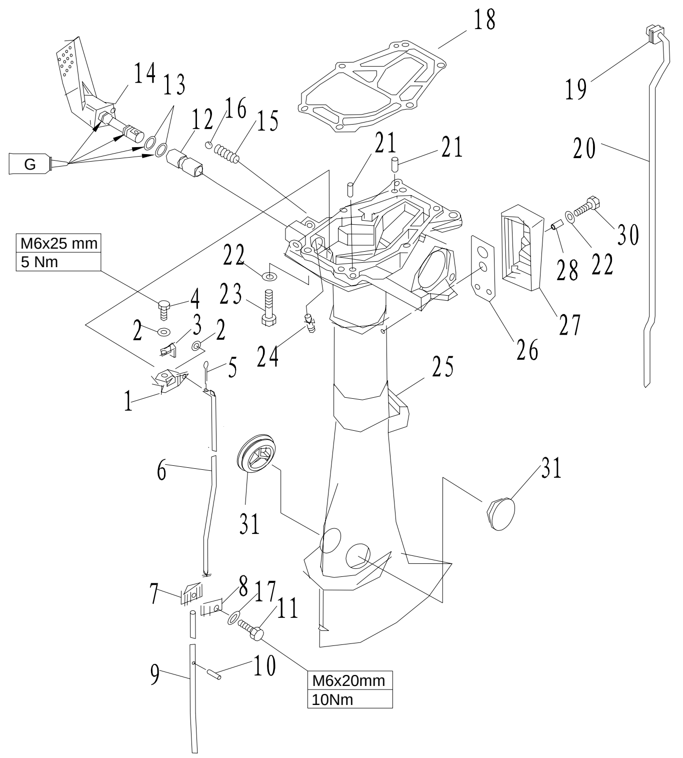
Explosive drawing



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	F2.6-02000006	变档连杆支架	LEVEL,SHIFT ROD	1	
2	GB/T97.1-85	平垫圈5	WASHER	3	
3	F2.6-02000008	变档手柄限位件	WASHER,SHIFT ROD LEVER	1	
4	GB/T5783-2000	六角螺栓M5x12	BOLT	1	
5	GB/T91-86	开口销1.6x12	PIN,COTTER	1	
6	F2.6-02000007	变档连杆	ROD SHIFT	1	
7	F2.6-00000001	变档连接器A	CONNECTOR,SHIFT ROD A	1	
8	F2.6-00000002	变档连接器B	CONNECTOR,SHIFT ROD B		
9	F2.6-03000005	变档凸轮轴	SHIFT CAMSHAFT	1	
10	GB/T879.2-2000	轻型直槽弹性圆柱销2.5x14	PIN	1	
11	GB/T5783-2000	六角螺栓M6x20	BOLT	1	
12	F4-02000002	水上装置壳体铜套	BUSHING,SHIFT ROD LEVER	1	
13	JISB2401	O形密封圈P9	O-RING	2	
14	F2.6-02020000	变档手柄组件	GEAE SHIFT HANDLE ASSY	1	



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
15	F4-02000003	变档弹簧	SPRING,GEAR	1	
16	GB308-84	钢珠8	BALL 8	1	
17	F4-00000005	大垫圈	WASHER	1	
18	F2.6-00000003	发动机密封垫	GASKET,ENGINE	1	
19	F4-02040002	工形橡胶圈	I-SHAPED RUBBER BAND	1	
20	F2.6-02000003	进水管	WATER TUBE	1	
21	F15-0000013	定位销Φ4x12	PIN	2	
22	GB/T97.1-85	平垫圈6	WASHER	7	
23	GB/T5783-2000	六角螺栓M6x35	BOLT	6	
24	GB/T7940.1-95	直通压注油杯M6	GREASE CUP	1	
25	F2.6-02000001	水上装置壳体	UPPER CASING	1	
26	F2.6-02000005	排气盖板垫	GASKET,EXHAUST COVER	1	
27	F2.6-02000004	排气盖板	EXHAUST COVER	1	
28	F2.6-00000102	护盖衬管	BUSH	1	



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION	数量 QTY	备注 REMARKS
29	GB/T818-2000	十字槽盘头螺钉M6x16 SCREW	1	
30	F4-02000012	水上装置橡胶堵头 RUBBER PLUG,UPPER	2	

Disassembling and inspection

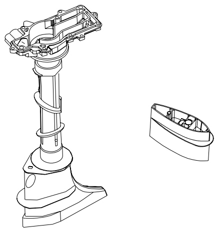
1. Remove the water tube.

2. Remove gear shift handle assembly.

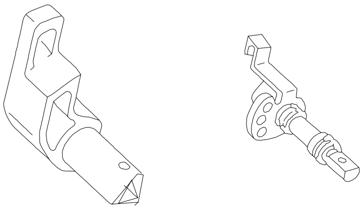
3. Remove the shift rod and shift rod lever.

4. Remove exhaust cover.

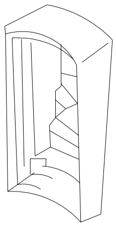
5. Check upper casing for crack or wear. Replace if necessary.



6. Check gear shift handle for wear or damage. Replace if necessary.



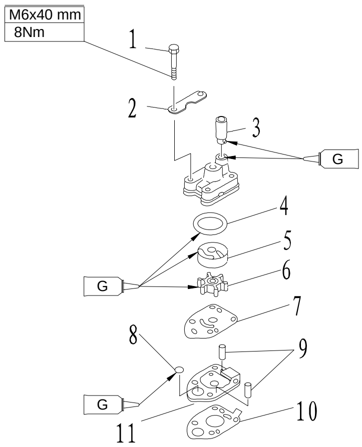
7. Check exhaust cover for crack or wear. Replace if necessary.



LOWER UNIT

WATER PUMP ASSEMBLY

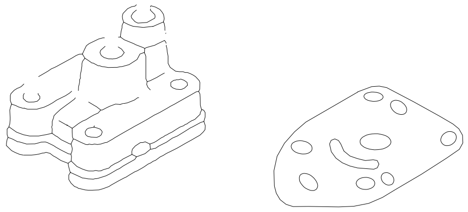
Explosive drawing



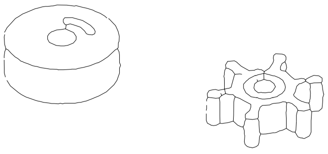
参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	GB/T5783-2000	六角螺栓M6x40	BOLT	4	
2	F2.6-03000016	泵壳固定板	PLATE, WATER PUMP FIXED	2	
3	F4-03000021	泵壳橡胶管	RUBBER TUBE, WATER PUMP	1	
4	JASO F404 19-033	水泵内壳O形圈	O-RING	1	
5	F2.6-03000015	水泵内壳	INNER HOUSING, WATER PUMP	1	
6	F2.6-03000100	叶轮组件	IMPELLER ASSY	1	
7	F2.6-03000010	外档板	OUT PLATE	1	
8	F2.6-03000009	O形密封圈	O-RING	1	
9	F4-03000013	定位销φ4x18	PIN	2	
10	F2.6-03000007	水泵座密封垫	GASKET, WATER PUMP	1	
11	F2.6-03000008	水泵座	HOUSING, WATER PUMP	1	

Disassembling and inspection

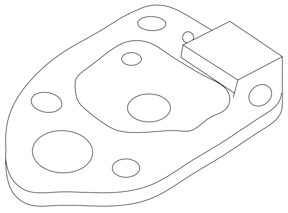
1. Remove water pump fixed plate.
2. Remove water pump housing.
3. Remove impeller, inner housing and O ring of water pump inner housing.
4. Remove water pump base.
5. Check water pump housing and out plate for crack, crank or damage. Replace if necessary.



6. Check inner water pump housing and impeller for crack, deform, burn or damage. Replace if necessary.

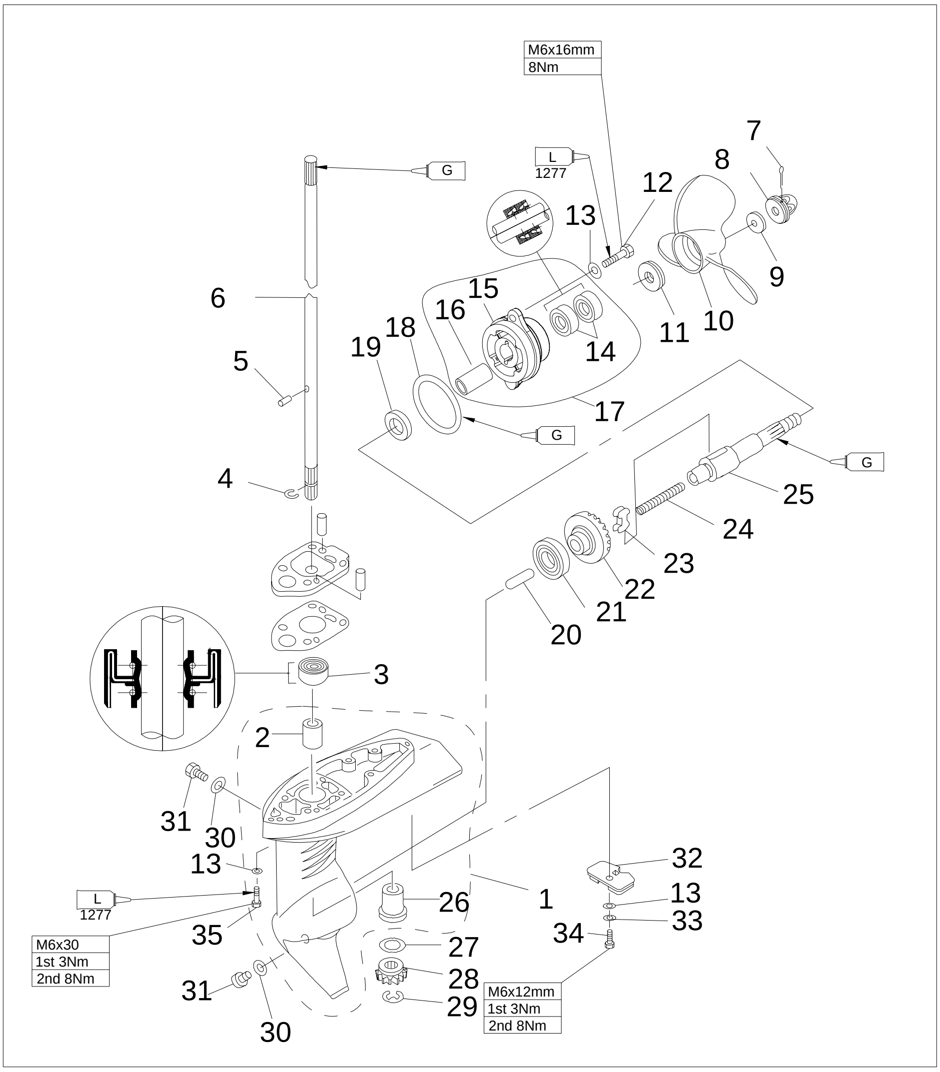


7. Check water pump base for crack, crank, scratch or damage. Replace if necessary.

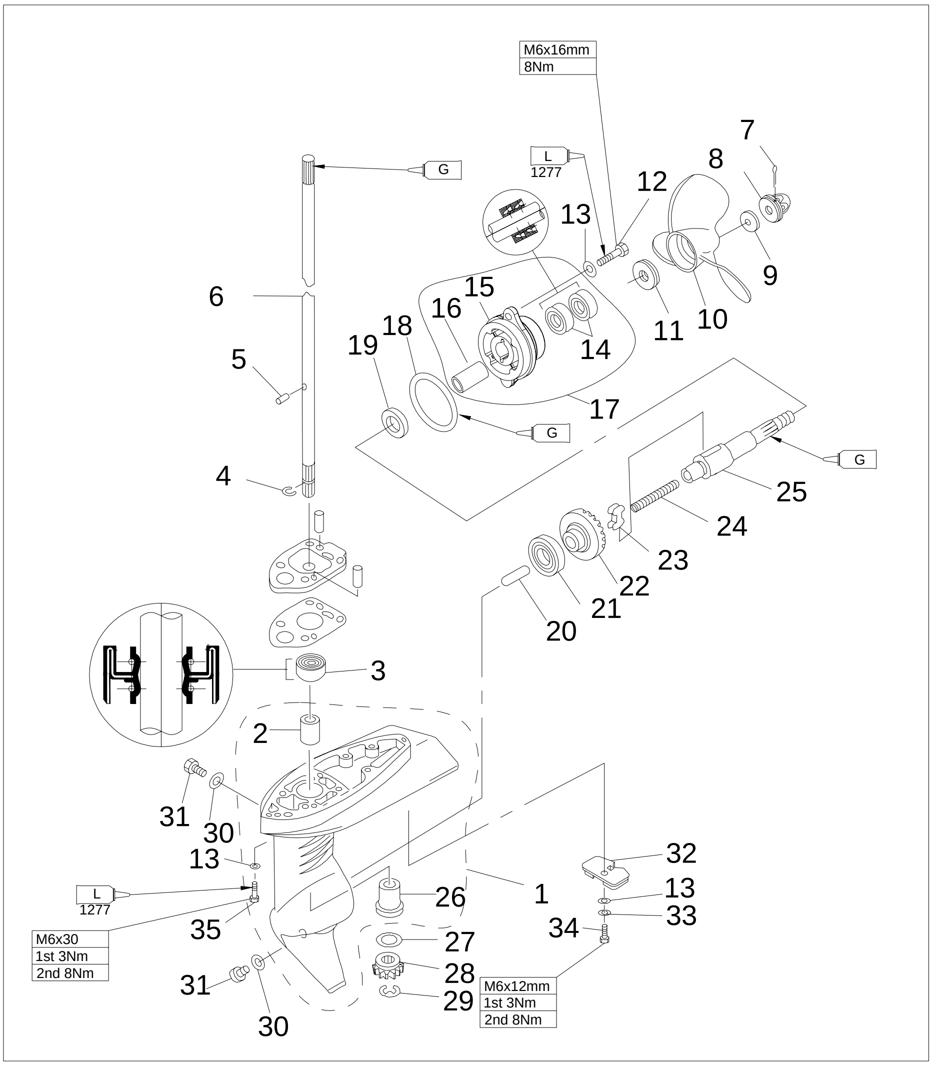


LOWER UNIT

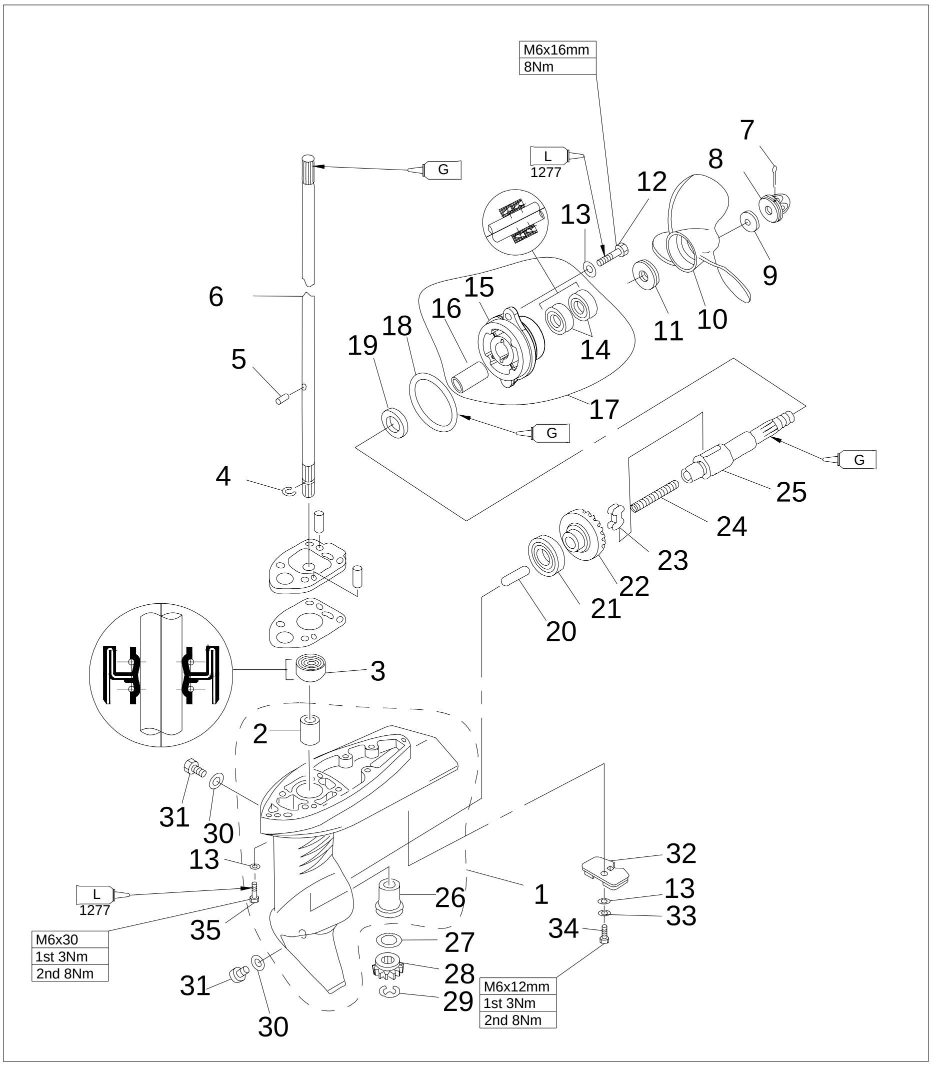
Explosive drawing



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
1	F2.6-03000001	水下装置壳体	LOWER CASING	1	
2	F2.6-03000003	不带档边筒形轴承	BEARING	1	
3	F2.6-03000004	驱动轴下油封9.8x24x9	OIL SEAL	1	
4	F2.6-03000012	轴用钢丝档圈	CLIP	1	
5	F2.6-03000013	叶轮定位销φ3.5x7	PIN	1	
6	F2.6-03000011	驱动轴	DRIVE SHAFT	1	
7	GB/T91-86	开口销2.5x30	PIN,COTTER	1	
8	F4-03080000	螺母组件	NUT ASSY	1	
9	F4-03000026	不锈钢垫片	WASHER	1	
10	F2.6-03010000	螺旋桨组件	PROPELLER ASSY	1	
11	F4-03000025	不锈钢垫块	SPACER	1	
12	GB/T5783-2000	六角螺栓M6x16	BOLT	2	
13	GB/T97.1-85	平垫圈6	WASHER	2	
14	F4-03050002	螺旋桨轴油封13x22x7	OIL SEAL	2	



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
15	F2.6-03000301	水下装置壳体盖	COVER,LOWER CASING	1	
16	F2.6-03000302	筒形轴承	BEARING ,SLEEVE	1	
17	F2.6-03000300	水下装置壳体盖组件	COVER ASSY ,LOWER CASING	1	
18	JISB 2401 P48	水下壳体盖O形圈φ47.1x3.5	O-RING	1	
19	F2.6-03000021	驱动轴垫圈	WASHER	1	
20	F2.6-03000020	变档柱塞	PLUG,SHIFT	1	
21	NTN 6003 EY	深沟球轴承	BALL BEARING	1	
22	F2.6-03000019	正档齿轮组件	POSITIVE GEAR ASSY	1	
23	F2.6-03000202	离合器块	CLUTCH BLOCK	1	
24	F4-03030003	离合器块压簧	SPRING,CLUTCH BLOCK	1	
25	F2.6-030000201	螺旋桨轴	SHAFT,PROPELLER	1	
26	F2.6-03000002	带档边筒形轴承	BEARING	1	
27	F2.6-03000017	主动轮填隙片（T：2.0毫米）	SHIM(T:2.0MM)	1	
28	F2.6-03000018	主动齿轮	INITIATIRE GEAR	1	



参照号码 SN.	零件编号 PART NO.	零件名称 DESCRIPTION		数量 QTY	备注 REMARKS
29	GB/T896-86	开口档圈6	CIRCLIP	1	
30	F4-03000024	注油孔螺塞垫	GASKET	2	
31	F4-03000023	注油孔螺塞	PLUG,OIL HOLE	2	
32	F4-03000022	阳极	ANODE	1	
33	GB/T861.1-87	内齿锁紧垫圈6	WASHER,INTERNAL TOOCH	1	
34	GB/T5783-2000	六角螺栓M6x12	BOLT	1	
35	GB/T5783-2000	六角螺栓M6x30	BOLT	3	

Disassembling and inspection

1. Remove cotter pin, nut assy, and spacer.

2. Remove propeller assembly and spacer.

3. Remove the lower casing cover.

4. Remove drive shaft, positive gear assy, and shift plug.

5. Remove shift rod cam assy and drive shaft.

6. Remove sleeve bearing with guard board.

7. Remove sleeve bearing without guard board by using sleeve bearing installer tool.

8. Remove the clutch block from the propeller shaft.

Propeller shaft and clutch block

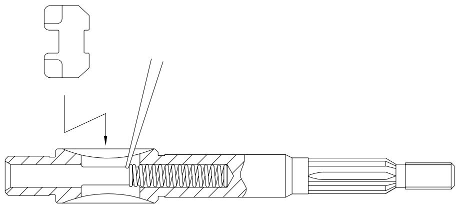
1. Check clutch block for wear or damage. Replace if necessary.

2. Check propeller shaft for wear or damage. Replace if necessary.

Clutch block installation

1. Put clutch block spring into the hole of the propeller shaft tail.

2. Install the clutch block as shown. Take note of the direction.



Lower casing cover

1. Check bearing for rust or rumbling when run. Replace if necessarily.

2. Remove bearing and oil seal by bearing puller.

Note:

Don't remove bearing unless change it.

3. Clean casing cover by a soft brush and solvent.

4. Check casing cover for crack or damage. Replace if necessary.

Lower casing cover oil seal and bearing installation

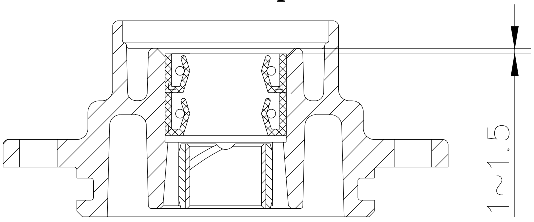
Install oil seal.

Note:

Please use special tool to install oil seal and bearing.

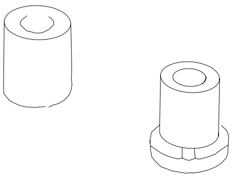
Pay attention to the oil seal installation direction and installation depth.





Sleeve bearing

Inspect sleeve bearing with guard board and sleeve bearing without guard board for wear, crack or damage. Replace if necessary.



Drive shaft

Inspect the drive shaft for crank or wear. Replace if necessary.

Gear

Inspect the forward gear and mini gear for wear or damage. Replace if necessary. .

Forward gear bearing

Inspect bearing for rust and rumbling when rotating. Replace if necessary.

Lower unit casing

1. Inspect lower casing cover for crack or damage. Check if the cooling water inlet is blocked. Replace if necessary.
2. Install the sleeve bearing with guard board and sleeve bearing without guard board by special tools.



Sleeve bearing with guard board installer tool

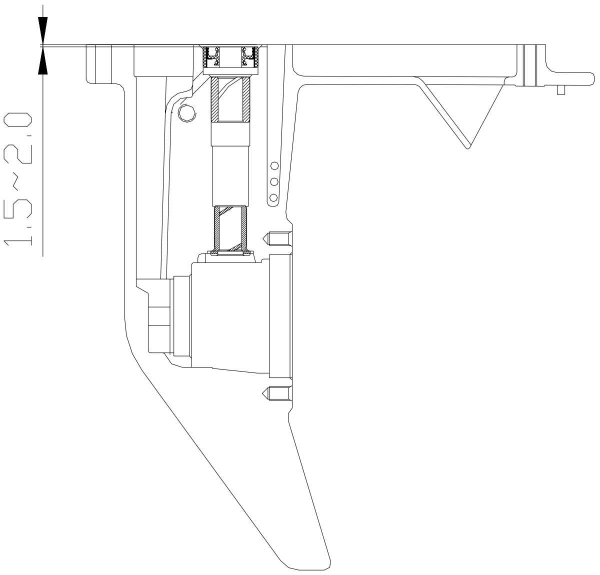


Lower casing bracket and sleeve bearing without guard board installer tool

3. Install new oil seal, with the depth as shown. (unit: mm)



Lower casing bracket and drive shaft oil seal installer tool



COMMON TROUBLES AND SOLUTIONS

Trouble type	Possible reason	Recovery action
Starter will not operate	Starter components are faulty	Repair or replace
Engine will not start (starter operates)	Fuel tank is empty	Fill tank with clean, fresh fuel
	Fuel is contaminated or stale	
	Air vent screw not loosened	Loosen air vent screw
	Spark plug(s) fouled or of incorrect type.	Inspect spark plug(s). Clean or replace with recommended type
	Spark plug cap(s) fitted incorrectly	Check and re-fit cap(s)
	Ignition wiring damaged or poorly connected	Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires
	Ignition parts are faulty	Replace
	Engine stop switch lanyard is not attached	Attach lanyard
	Engine inner parts are damaged	Repair
	Valve gap is incorrect	Inspect and adjust as specified
Engine idles irregularly or stalls	Spark plug(s) fouled or of incorrect type.	Inspect spark plug(s). Clean or replace with recommended type
	Fuel system is obstructed	Check for pinched or kinked fuel line or other obstructions in fuel system
	Fuel is contaminated or stale	Fill tank with clean, fresh fuel
	Spark plug gap is incorrect	Inspect and adjust as specified
	Ignition wiring damaged or poorly connected	Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires
	Specified engine oil is not being used	Check and replace oil as specified
	Thermostat is faulty or clogged	Replace
	Carburetor adjustments are incorrect	Replace
	Air vent screw on fuel tank is closed	Loosen air vent screw
	Throttle cable adjustments is incorrect	Adjust correctly
	Choke knob is pulled out	Return to home position
	Motor angle is too high	Return to normal operating position
Engine power loss	Propeller is damaged	Repair or replace propeller
	Trim angle is incorrect	Adjust trim angle to achieve most efficient operation
	Motor is mounted at incorrect transom height	Adjust motor to proper transom height
	Boat bottom is fouled with marine growth	Clean boat bottom
	Weeds or other foreign matter are tangled on gear housing	Remove foreign matter and clean lower unit

Cont'd

Trouble type	Possible reason	Recovery action
Engine power loss	Fuel system is obstructed	Check for pinched or kinked fuel line or other obstructions in fuel system
	Fuel is contaminated or stale	Fill tank with clean, fresh fuel
	Spark plug gap is incorrect	Inspect and adjust as specified
	Ignition wiring is damaged or poorly connected	Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires
	Ignition parts have failed	Replace
	Specified engine oil is not being used or oil is added too much	Check and replace oil as specified, or adjust engine oil to specified position
	Thermostat is faulty	Replace
	Fuel joint connection is incorrect	Connect correctly
	Specified spark plug(s) are not being used	Check and replace spark plug(s) as specified
Engine vibrates excessively	Propeller is damaged	Repair or replace propeller
	Propeller shaft is damaged	Replace
	Weeds or other foreign matter are tangled on propeller	Remove and clean propeller
	Motor mounting bolt is loose	Tighten bolt
	Steering pivot is loose	Tighten steering pivot
	Steering pivot is damaged	Replace